HORSELESS AGE The oldest automotive paper published in the English language has been purchased by The Class Journal Co. Its engineering features, and a part of its circulation, have been merged with AUTOMOTIVE INDUSTRIES

AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

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Number 14

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Hudson Dealers Are Ready *for the* Future

"We have no other intention than to operate our service and parts station to give Hudson owners the best possible attention."

Thus writes one Hudson dealer in response to the Hudson 100% war-work announcement. His answer is typical of practically all the rest.

They show a determination to "carry on," realizing that to preserve their identity and their connection with Hudson will be their greatest asset for the future after the war is won.

They know that the Super-Six has already undergone endurance tests which for severity cannot be surpassed even if the war is prolonged far beyond present prospects.

Their confidence is complete that when peace comes again and more automobiles can be made, the 57,000 Super-Sixes now in service will have added irresistible evidence of super-quality to the prestige and good-will that Hudson has already earned.

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HUDSON MOTOR CAR CO. DETROIT, MICH.

HUDSON SUPER SIX

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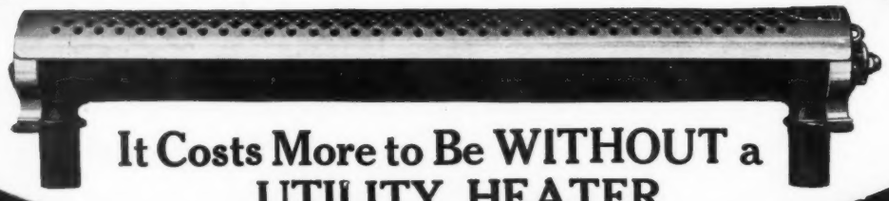

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Truck Manufacturers: Utility Heaters are humane. Think of the man who drives the truck winter in and out. Make the Utility standard or at least optional equipment. Write us.

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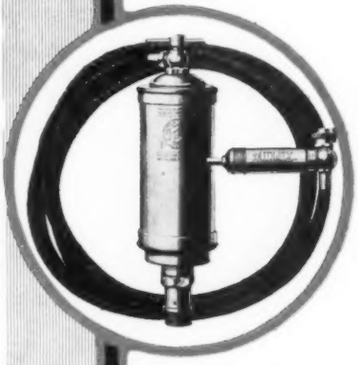
Handled by good dealers everywhere.
Dealers: Stock from your jobber. Get your share of heater business this next six months.



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$12.00.
For Fords $7.50

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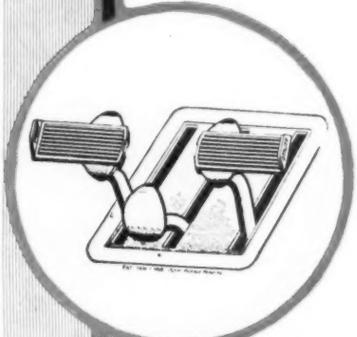

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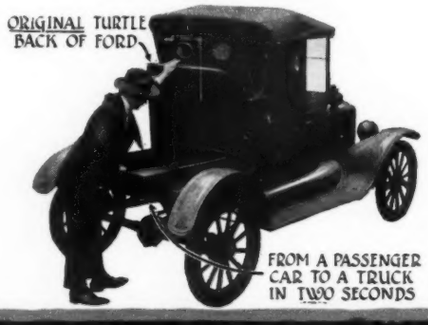


UTILITY
UNIVERSAL
Wrench for All Cars
$3.50

UTILITY
Automotive Products

AUTOMOTIVE INDUSTRIES
The AUTOMOBILE

VOL. XXXIX NEW YORK, THURSDAY, OCTOBER 3, 1918—CHICAGO NO. 14

Aircraft Board Purposely Created Without Power

Its Sole Function Was Advisory, Not Executive—Its Great Mission Was to Make the Army and Navy Co-operate in Aviation

By David Beecroft

NEW YORK, Oct. 1—In the interim between the aircraft report of the subcommittee of the Senate Military Affairs Committee and the Hughes report, which is expected in a few weeks, it might be well to clear up a few misconceptions generally held regarding the aircraft organization as it existed up until this spring when Howard E. Coffin resigned and John F. Ryan was appointed to take his place.

The Aircraft Board from its inception was entirely an advisory organization rather than an executive one. It never possessed any executive power such as needed in placing a contract for Liberty engines or deHaviland 4 planes, but exercised only advisory power relating to such, the executive power for placing of orders or making decisions resting with the Army or Navy.

Clearing House for Army and Navy

In the act creating the Aircraft Board, Oct. 1, 1917, it was very specifically stated that the board was to be purely advisory. It was always a clearing house for the Army and Navy. The inception of the board was to get the Army and Navy to play ball together if the phrase may be used, and the board has proven successful in this regard.

The Army and Navy were both apparently very zealous of their power and authority and this power and authority were carefully protected in the act of Oct. 1, 1917, creating the Aircraft Board, for it specifies "that the board is hereby empowered under the direction and control of, and as authorized by, the Secretary of War and the Secretary of the Navy respectively, on behalf of the Department of War and Navy, to supervise and direct, in accordance with the requirements prescribed or approved by the respective departments, the purchase, production and manufacture of aircraft engines, etc. Provided, that the board *may* make recommendations as to contracts and their distribution in connection with the foregoing, *but every contract shall be made by the already constituted authorities and the respective departments.*"

Limits Prescribed by the Board

This clearly shows the limits prescribed for the Aircraft Board. It is very specific that all contracts must be made by the Army and Navy which are the "already constituted authorities of the respective departments."

The act of Oct. 1, 1917, went further and very specifically placed not only limits on the power of the Aircraft Board but saw to it that the Aircraft Board would not have any opportunity to build up an organization that would in any wise take power from the army and navy. The act stated that there

Text of the Act Creating An Aircraft Board

(Public—No. 48—65th Congress.)
(S. 2705.)

An Act to create the Aircraft Board and provide for its maintenance.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That **for the purpose of expanding and co-ordinating the industrial activities relating to aircraft, or parts** of aircraft, **produced for any purpose in the United States,** and to facilitate generally the development of air service, a board is hereby created to be known as the Aircraft Board, hereinafter referred to as the board.

Sec. 2. That the board shall number not more than nine in all, and shall include **a civilian chairman,** the Chief Signal Officer of the Army, and two other officers of the Army, to be appointed by the Secretary of War; the Chief Constructor of the Navy and two other officers of the Navy, to be appointed by the Secretary of the Navy; and **two additional civilian members.** The chairman and civilian members shall be appointed by the President, by and with the advice and consent of the Senate.

Sec. 3. That said board and tenure of office of the members thereof shall continue during the pleasure of the President, but not longer than six months after the present war. The civilian members of the board shall serve without compensation.

Sec. 4. That the board is hereby empowered, **under the direction and control of and as authorized by the Secretary of War and the Secretary of the Navy respectively, on behalf of the Departments of War and Navy,** to supervise and direct, **IN ACCORDANCE WITH THE REQUIREMENTS PRESCRIBED OR APPROVED BY THE RESPECTIVE DEPARTMENTS,** the purchase, production and manufacture of aircraft, engines, and all ordnance and instruments used in connection therewith, and accessories and materials therefor, including the purchase, lease, acquisition or construction of plants for the manufacture of aircraft, engines and accessories: **Provided,** That the board **may** make recommendations as to contracts and **their distribution** in connection with the foregoing, **but every contract shall be made by the already constituted authorities of the respective departments.**

Sec. 5. That the board is also empowered to employ, either in the District of Columbia or elsewhere, such clerks and other employees as may be necessary to the conduct of its business, including such technical experts and advisers as may be found necessary, and to fix their salaries. Such salaries shall conform to those usually paid by the Government for similar service: **Provided,** That by **unanimous approval** of the board higher compensation may be paid to technical experts and advisers. The board may rent suitable offices in the District of Columbia or elsewhere, purchase necessary office equipment and supplies, including scientific publications and printing, and may incur necessary administrative and contingent expenses, and for all of the expenses enumerated in this paragraph there shall be allotted by the Chief Signal Officer of the Army for the fiscal year nineteen hundred and seventeen and nineteen hundred and eighteen the **sum of $100,000,** or so much thereof as may be necessary, from any appropriation now existing for or hereinafter made to the Signal Corps of the Army, and such appropriation is hereby made available for these purposes: **Provided further, That except upon the joint and concurrent approval of the Secretary of War and the Secretary of the Navy there shall not be established or maintained under the board any office or organization duplicating or replacing, in whole or in part, any office or organization now existing that can be properly established or maintained by appropriations made for or available for the military or naval services. Provided further,** That a report shall be made to Congress on the first day of each regular session of the salaries paid from this appropriation to clerks and employees by grades, and the number in each such grade.

Approved, Oct. 1, 1917.

should be no organization of the Aircraft Board that would duplicate a single existing organization of either the Army or the Navy.

Here is how the act expressed it: "Provided further: that except upon the joint and concurrent approval of the Secretary of War and the Secretary of the Navy, there shall not be established or maintained under the board any office or organization duplicating or replacing, in whole or in part, any office or organization now existing that can be properly established or maintained by appropriations made for or available for the military or naval services."

This expressly forbade the board either to establish or maintain any office that would duplicate a single activity of either the Army or Navy.

But the act of Oct. 1, 1917, put a further restriction on the Aircraft Board and made it very certain that its powers would never be more than advisory. It appropriated only $100,000 for the Aircraft Board so that the Board had no funds to buy airplanes, develop airplane engines, engage aircraft engineers, erect testing laboratories or build experimental stations for aircraft development. There was only $100,000 for the board.

Note the act of Oct. 1, 1917, on this financial aspect:

"The board is empowered to employ, either in the District of Columbia or elsewhere, such clerks and other employees as may be necessary to conduct the business, including such technical experts and advisers as may be found necessary, and to fix their salaries. Such salaries shall conform to those usually paid by the Government for similar service. Provided, that by unanimous approval of the Board higher compensation may be paid to technical experts and advisers. The board may rent suitable offices, purchase necessary office equipment and sup-

plies, including scientific publications and printing, and may incur necessary administrative and contingent expenses, and for all of the expenses enumerated there shall be . . . allotted $100,000 for the fiscal year of 1918."

This clause of the act put the final possibility of any large or elaborate Aircraft Board organization entirely out of being. It was never intended that there should be such and there never has been such. The Aircraft Board was to be purely advisory and it has always remained so.

What Was Its Mission?

If the Aircraft Board was not to have any executive power, why was it created? What was its special mission? What was it designed for? As already stated, its leading mission was to get the Army and Navy to play ball together on matters relating to aviation. Here is how this was accomplished:

All technical decisions regarding aircraft matters in 1917 and 1918 were made by the joint Army and Navy technical committee composed of three representatives from the Army and three from the Navy. These six representatives were all regular Army and Navy men and no civilians were included.

Making technical decisions was the work of this joint technical committee, and no type of airplane was ever brought into production that was not approved by this joint technical committee. The programs for engines, planes and other activities were brought before the Aircraft Board by representatives of the Army and Navy after having been approved by the joint committee of the Army and Navy. When these programs were laid before the board it gave or withheld its approval as it saw fit.

The Aircraft Board had to deal entirely with this joint committee on all matters relating to aircraft design, engines, selection of types, etc. There seemed no possibility of getting the aviation departments of the Army and Navy to work together except through some civilian organization as the Aircraft Board. Such a situation was not confined to America.

England, Too, Had Trouble

From the beginning of the war England had troubles between her army and navy on matters relating to aviation. In England the formation of the Air Service, putting all aircraft activities under one head, brought this to an end. In America the civilian Aircraft Board accomplished the desired end. The Army and Navy really played ball so far as aviation was concerned. The Aircraft Board was a success.

The Aircraft Board, although created by act, Oct. 1, 1917, was never given half an opportunity to show what it could do. Its three civilian members were not all appointed until late in February, so that although the board accomplished its mission it did so under a severe handicap.

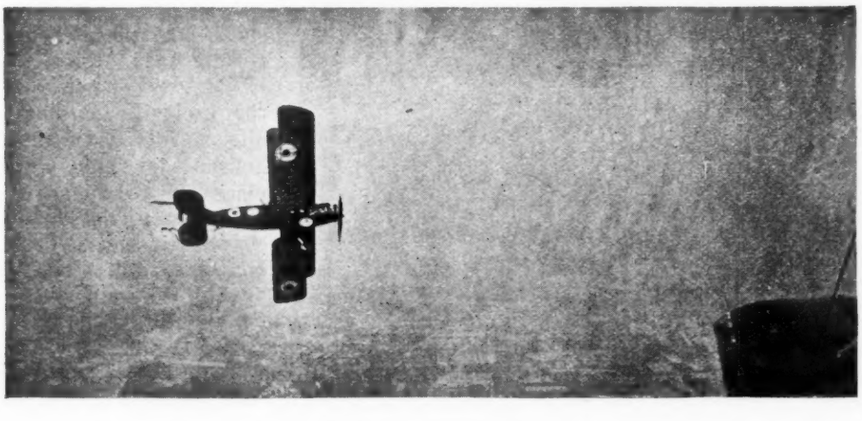
Howard E. Coffin was not appointed chairman for some time and the two other civilian members were not appointed for months; in fact, it was February before the final appointment was made. Undoubtedly politics was largely responsible for the delay as numerous good names were offered but none of them was accepted. In the meantime, other names were brought up and one or another dropped without the Aircraft Board being even consulted.

Previous to the creation of the Aircraft Board on Oct. 1, 1917, the Aircraft Production Board had existed as a committee of the Council of National Defense, and as such possessed only advisory powers. The board was then largely civilian in its make-up and consisted of $1 per year men. During this time Coffin was assisted by E. A. Deeds, S. D. Waldon and R. L. Montgomery.

It was in August, 1917, or near that time, when Deeds, Waldon and the others, except Coffin, went into the Signal Corps and as representatives of such had executive power which they did not have as members of the Aircraft Production Board. Some of these men filled dual capacities. At one hour of the day they were working as members of the Aircraft Production Board in a purely advisory capacity and the next hour may have been placing contracts and exercising other executive powers as a representative of the Signal Corps. They could not do such as a member of the board.

This may have been the reason why the Aircraft Production Board and later the Aircraft Board were blamed for a hundred things that they had no right to be blamed for. The acts were not committed by members of the Aircraft Board but by members of the Signal Corps.

In times of investigation and dispute we should give the devil his due and so the board must not be loaded with abuses over which it had no authority or control.



A British Airplane

forming one of a squadron operating on the Western Front, shown sharply banked in order to make a rapid turn. The photo was taken from the machine of which one aileron is visible in the foreground on the right

Analysis of Automobile Merchandising in New Zealand

PART I

Advent of American Car in 1915 and 1916 Created New Mode of Business—American Car Now Dominant—Service the Important Factor

WOOL INDUSTRY AFFORDS GOOD TRUCK POSSIBILITIES —FOREIGN TRADE DEPARTMENT

By G. A. Worrall*

WELLINGTON, N. Z., Aug. 1—The war established the American motor car industry in New Zealand. It was the volumes of money that started to flow into the country in the latter half of 1915 and the first half of 1916 from the sale of wool for war purposes that started the stimulation that has continued almost up to to-day, at which time the American automobile is dominant in New Zealand. Approximately every nine out of ten automobiles met in the two islands are American cars.

In New Zealand as in America everything now dates from the war, that eventful August day in 1914. Events happened either before the war or since it started. The American car came after the war, and its entry was due to two factors: First, it was in 1914 and 1915 that production of the American car rose to unprecedented figures. The American production for 1914 was 573,114 automobiles. For 1915 it was 892,618; for 1916 it was 1,617,708, and for 1917 it was 1,938,778.

The second factor was the entry of European countries into the war. England dominated the New Zealand market in pre-war days. France had a slight foothold and Germany had a very small following. The American car was a very limited factor in New Zealand motoring previous to the war, Ford being the pioneer.

*Mr. Worrall spent 11 months in New Zealand as special representative of the foreign department of the White Co. He traveled on both islands and studied conditions for automobiles and trucks.

Typical wool and dairy farmers of New Zealand. This group make up the board of directors of a dairy in Taranaki. They are in the truck market

To-day the American automobile is the only make being sold in New Zealand, in fact only American cars have sold since 1914, when the war automatically withdrew the European nations.

The coming of the American automobile to New Zealand in 1915 started what has become a veritable upheaval in the distribution and maintenance of automobiles. A new group of dealers has sprung up. This group is fashioned very largely after the American pattern of dealer. He is an exclusive dealer who sells one, two or perhaps three makes of American automobiles and also handles motor trucks, accessories and soon will be selling farm tractors and unit lighting outfits.

Simultaneously with the upgrowth of this new pattern of importer or distributer there has sprung up in New Zealand a complete new line of salesrooms for the trade. The modern automobile salesroom is seen in Wellington, Auckland, Christ Church, Dunedin and other cities here, just as it is seen in Richmond, Va., in Ithaca, N. Y., or in Hutchinson, Kan. In some cities ten or eleven of these new salesrooms have been built since 1915. In smaller places five or six of such places have sprung up.

The development of the exclusive automobile and truck dealer housed in his new place of business brought with it a new chapter in service in New Zealand. Previous to the war, automobile service as you know it in America scarcely existed in New Zealand.

Very few if any of the dealers or importers carried an adequate supply of spare parts, so that very frequently automobiles were laid up for a month or two waiting for spares to arrive from England, France or Italy.

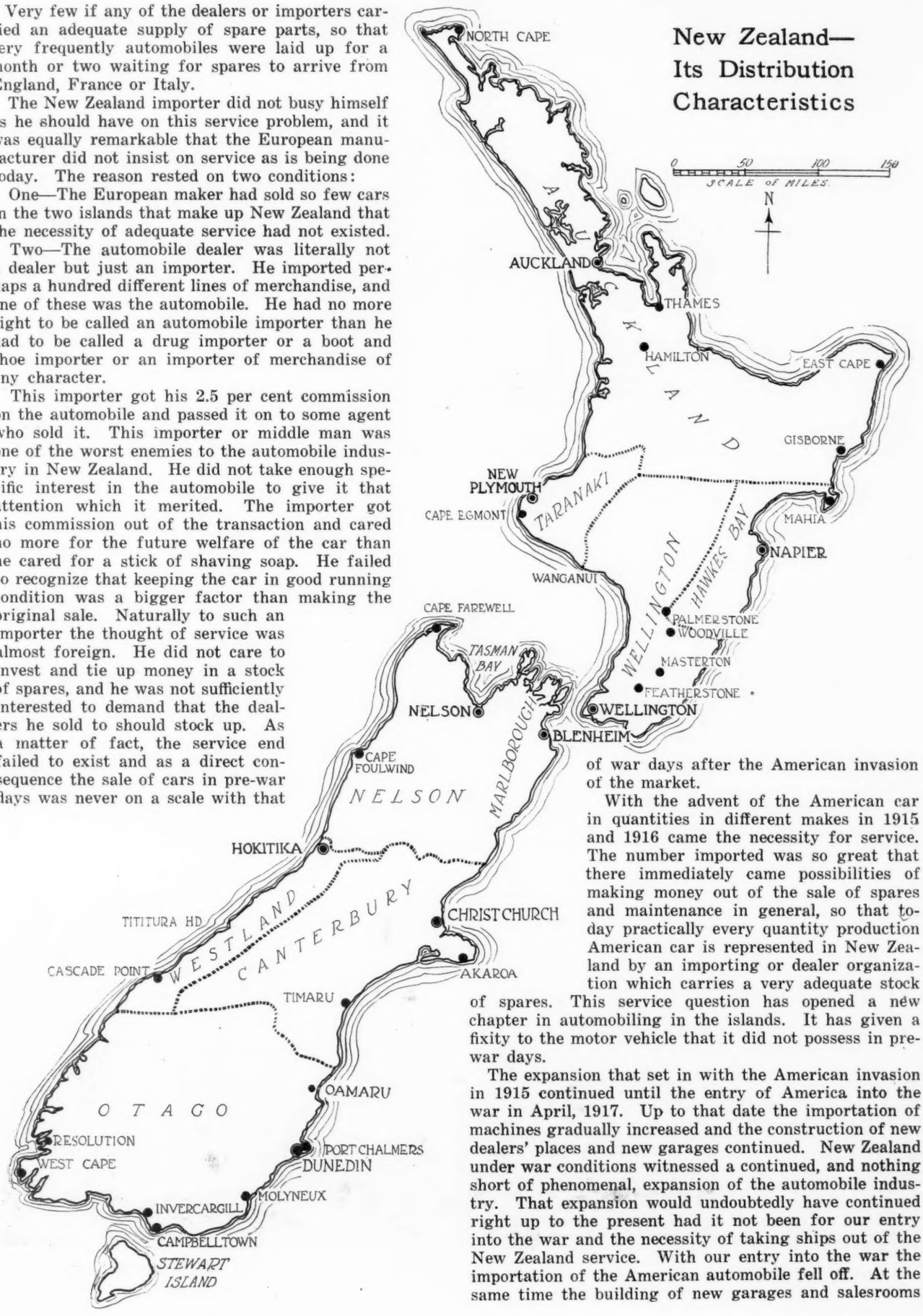
The New Zealand importer did not busy himself as he should have on this service problem, and it was equally remarkable that the European manufacturer did not insist on service as is being done today. The reason rested on two conditions:

One—The European maker had sold so few cars in the two islands that make up New Zealand that the necessity of adequate service had not existed.

Two—The automobile dealer was literally not a dealer but just an importer. He imported perhaps a hundred different lines of merchandise, and one of these was the automobile. He had no more right to be called an automobile importer than he had to be called a drug importer or a boot and shoe importer or an importer of merchandise of any character.

This importer got his 2.5 per cent commission on the automobile and passed it on to some agent who sold it. This importer or middle man was one of the worst enemies to the automobile industry in New Zealand. He did not take enough specific interest in the automobile to give it that attention which it merited. The importer got his commission out of the transaction and cared no more for the future welfare of the car than he cared for a stick of shaving soap. He failed to recognize that keeping the car in good running condition was a bigger factor than making the original sale. Naturally to such an importer the thought of service was almost foreign. He did not care to invest and tie up money in a stock of spares, and he was not sufficiently interested to demand that the dealers he sold to should stock up. As a matter of fact, the service end failed to exist and as a direct consequence the sale of cars in pre-war days was never on a scale with that of war days after the American invasion of the market.

New Zealand—Its Distribution Characteristics



With the advent of the American car in quantities in different makes in 1915 and 1916 came the necessity for service. The number imported was so great that there immediately came possibilities of making money out of the sale of spares and maintenance in general, so that today practically every quantity production American car is represented in New Zealand by an importing or dealer organization which carries a very adequate stock of spares. This service question has opened a new chapter in automobiling in the islands. It has given a fixity to the motor vehicle that it did not possess in prewar days.

The expansion that set in with the American invasion in 1915 continued until the entry of America into the war in April, 1917. Up to that date the importation of machines gradually increased and the construction of new dealers' places and new garages continued. New Zealand under war conditions witnessed a continued, and nothing short of phenomenal, expansion of the automobile industry. That expansion would undoubtedly have continued right up to the present had it not been for our entry into the war and the necessity of taking ships out of the New Zealand service. With our entry into the war the importation of the American automobile fell off. At the same time the building of new garages and salesrooms

New Types of New Zealand Salesrooms Due To American Car Influence

Salesroom of the Dominion Motor Vehicle Co. in Wellington. Chevrolet agents

Mangus-Sanderson, Ltd., handle Dodge cars and U. S. tires in this building in Wellington

The garage entrance of the Dominion Motor Vehicle Co. in Wellington

The Nattrass & Harris Motor Co., Ltd., entered the business in Wellington 2 years ago and now has a branch in Napier

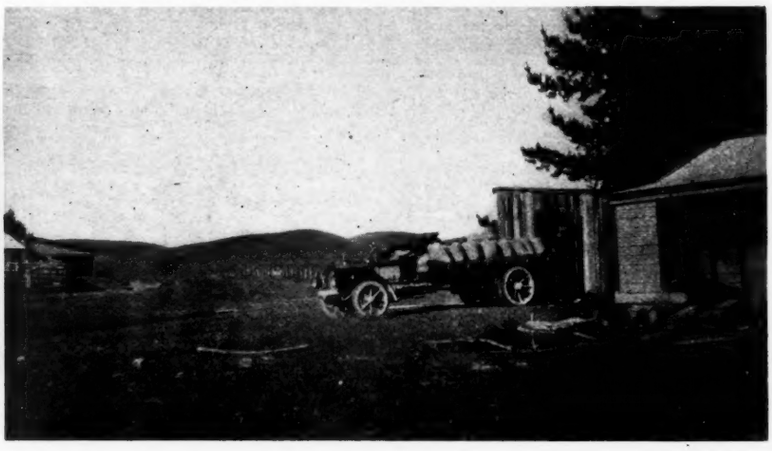
The Colonial Motor Co., Ltd., is Ford agent for all New Zealand. The company assembles all cars here and will soon have a large assembling plant at Auckland

This is the establishment of the Buick sub-agent in Palmerstone on the North Island

A. Hatrick & Co., Ltd., of Wellington handle Overlands, Garford trucks and Hupmobiles

Typical New Zealand Roads and Truck Work in Wool Industry

A 3-ton truck with a four long ton (2240 lb.) load 30 miles out of Wellington



Typical country carrier on a farm one mile off the main highway. This is a sheep station

A stretch of the 250-mile road from Wellington to Napier on the North Island. This part is between Wellington and Palmerstone

This Wellington carrier hauls all the coke from there to Petone, 20 miles away. He has 5 trucks and 40 horses

A specimen of Taranaki roads. There are 150 miles like this in the province running through dairy country

Typical Hawkes Bay road between Hawkes Bay and Palmerstone—a section between Napier and Wellington

Brooklyn Hill, overlooking Wellington. It is 1¼ miles long and has a gradient of 12 per cent. It is used as a truck and car demonstration hill by local dealers. It has a brick surface

began falling off, until to-day it is practically at a standstill.

New Zealand is being particularly hard hit at present with the war. The two islands have a population of 1,100,000, and it has sent an army of 100,000 men to France. One out of every ten of the population has gone to France. At present New Zealand is drafting married men with two children. This shortage of men, which has been very acute during the last 2 years, has naturally cut into the demand for automobiles, a situation which is also certain to exhibit itself in America.

America might draw a parallel on the New Zealand man power question by attempting to visualize the American nation when it has over 10,000,000 men in France. When the American army reaches that figure American representation on the French field will bear the same relationship to the present army of New Zealand in France. The loss of man power in America will scarcely be so apparent when America has her army of 10,000,000 in France as in New Zealand to-day, because America as a country is better fitted with man-conserving machinery than New Zealand. New Zealand is essentially a pastoral country with wool, live stock and dairy products the main staples of the nation. Naturally such a nation, which is not in any sense a manufacturing nation, is not so well fitted mechanically to fit women into varied fields of industry as America with her leadership in mechanics and manufacture.

Although New Zealand is to-day to all appearances entirely within the grasp of the American automobile industry, due to the withdrawal of England from the market, many of the large distributers, or importers as they are preferably called here, have maintained strong affiliations with their British houses. One of the large importers recently admitted that he has orders for over 100 of a particular make of British car, and it is only natural to expect that just as soon as the war is over and British automobile makers get off their munition program and get back on automobiles, orders from many New Zealand dealers will start pouring in. The day war was declared New Zealand voted to send its army to support that of the British Empire, and ever since its energies have been centered on that goal. The 4 years of war have linked the New Zealander closer to the Britisher. It must be expected that these relationships will follow the signing of peace.

It is for this reason that the American manufacturer

The road leading out of Wellington. It's a 14-mile climb on this road to the top of the hills beyond the city

will have to look carefully to his New Zealand representation if he hopes to retain his hold on this market. It is expected that cheaper American prices will have a certain selling influence, but offsetting this will be the preferential import duties on British goods. At present the American pays 10 per cent more customs duty than the Britisher, and it will not be surprising if a still greater preference is given England and the other British colonies. In this connection Canada is bound to demonstrate its strength as a manufacturing country. The increase in manufacture in Canada due to munitions and war products in general has to a large extent established production manufacture there as was not known in prewar days. This is bound to have an effect on after-war manufacture.

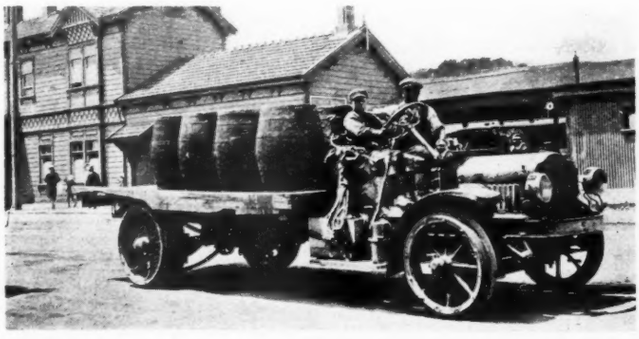
New Zealand, notwithstanding the war, will be a potential buying country, notwithstanding its small population, which is little more than Uruguay in South America, and only one-fifth of Australia or one-eighth of Canada. The two islands, with their 1,100,000 population, have practically all of this as a possible buying field. The entire population is white and almost exclusively descended from English, Irish, Scotch and Welsh stock. There are 45,000 natives known as Maoris—Mow-rees. These are the aborigines. They are intelligent but perhaps lazy. A percentage of them are

car buyers. They are all land settlers, and their property is protected by the government to such an extent that it cannot be sold and they cannot be dispossessed of it. In addition, the population includes 4000 Germans and perhaps 3000 Chinese.

With these people the five and seven-passenger touring cars are the dominating vehicles. You rarely see a limousine in any of the New Zealand cities. You never see a sedan. The runabout is not nearly so popular in proportion to numbers as in America. The New Zealander is a man of relatively large family and the family car is practically as popular as in Argentina or Brazil.

The greatest class of buyers is the farmer, which in New Zealand is a much broader term than in America. The largest farmers are sheep raisers, as sheep raising is the first industry in New Zealand. These sheep raisers are termed station owners, a term parallel to ranchman in America or estanciero in Argentina. Some of them have over 100,000 sheep, but the average small station owner will have 5000 sheep. Recently the government has taken a hand in the sheep raising work and is reducing the size of the sheep ranches, so that each year finds an increasing number of station owners.

These station owners invariably live on their stations or sheep farms. Some of them have their city homes, but in general they may be from 50 to 75 miles from a city. These small station owners have always been the buyers of cars. You see many of these station owners with such English cars as Talbot, Rolls Royce, Daimler, Rover, Swift, Crossley and such other European makes as Minerva, Renault and Peugeot. Fiat and Lancia both have a good following. These small station owners have been and still are big buyers of American cars. They use their cars exclusively in the country, and 65 per cent of the car use is over metal or macadam roads and 35 per cent over dirt roads.



This 12-year-old boy of Taranaki regularly drives this 3-ton White over the one-mile stretch from and to the railroad depot

The second class of buyers is the city owner, which is made up of the same kind of buyer as an American city of 100,000 population. There are garages in every city of 1000 population up. There are salesrooms in every town of 5000 up, although there are quite a few smaller towns that have salesrooms. Gasoline is on sale in every village, although just at present the sale of it is being curtailed. Many dealers are only getting 50 per cent as much gasoline now as they got a year ago. The price has risen from $5 for a case of 8 imperial gallons up to $8 and $10 for the same quantity. A price of $1 per gallon has not been unusual during the past 4 months. The most of the gasoline comes from Sumatra and America. The Sumatra product is known as Shell spirit. It all comes in cases of two tins, each tin containing 4 imperial gallons. The imperial gallon is one-fifth larger than the American gallon.

The generally good roads of New Zealand have been a potent factor in the sale of automobiles to date. Only the main roads are metal or macadam. There is a linkage of metal roads connecting practically all cities of 5000 and up. Take an example: The City of Wellington, 73,000, is one of the two main cities in the northern island. From Wellington good roads radiate to Featherstone, 30 miles, and thence on 50 miles to Masterton and thence 50 miles further to Woodville. There is a good road radiating in another direction to Palmerston, 100 miles, and from here it continues 150 miles further into the interior. The road situation radiating out of Wellington is typical of that radiating out of such other cities as Christ Church and Dunedin in the South Island.

(To be continued)

On this road out of Wellington it is a 1½-hour steady climb in a touring car. Wool comes down this 25-mile hill from the outlying country

The Army's Ambulance Program

Automotive Equipment Comprises Ambulances on G. M. C. and Ford Chassis —Spare Parts Trailer—Collapsible Motorcycle—A Field Litter Which May Be Towed or Pulled by Men

WASHINGTON, Sept. 27.—With the completion of the designs for the several standard machines necessary for the Medical Department Ambulance Service, the program has been definitely settled and production has started. In some instances, as with the standard ambulance, quantity production is under way. The ambulance program comprises:

1—The standard army ambulance, which is made up of the General Motors Co. ¾-ton truck No. 16 chassis combined with an especially designed body.

2—The U. S. Army service ambulance, which is a Ford chassis slightly redesigned together with an especially constructed body.

3—A spare parts trailmobile.

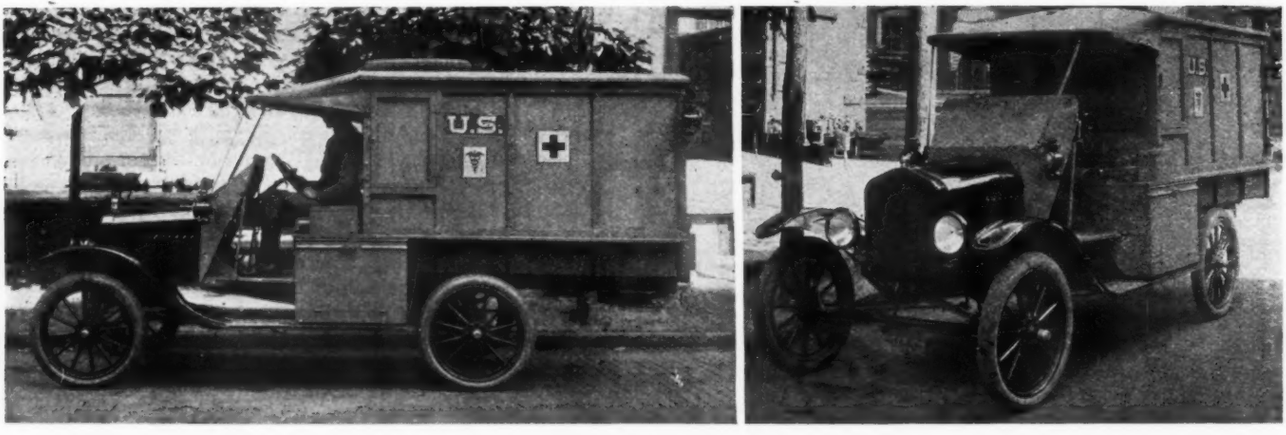
4—The Indian motorcycle, military type.

5—A specially constructed litter carrier trailer.

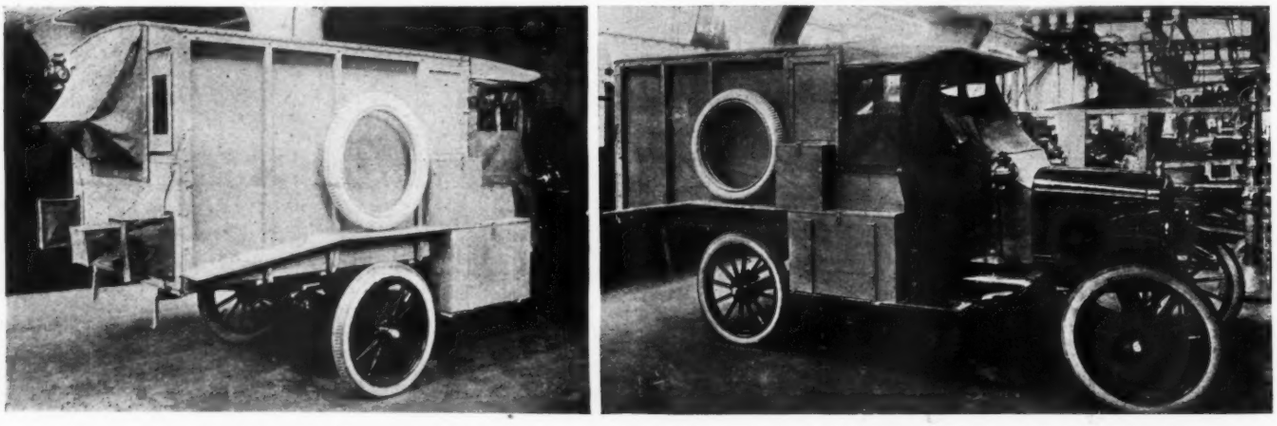
At the beginning of the war the only type of ambulance was a G. M. C. chassis equipped with an open stake body. The new standardized ambulance, which is built on what is known as the AA chassis, which is the G. M. C. No. 16, is known in the service as type B 1918. The body panels are made of agasote. The dash is entirely of steel. It is so designed that it is shipped knocked down in four units on which the fixtures are already assembled. All of the holes in each unit are jig drilled, allowing for interchangeability of parts and for quick repairs.

The ambulance has a capacity for four wounded men prone and for eight sitting. The bodies are being manufactured by the Elkhart Carriage Co., Elkhart, Ind., and the Anderson Electric Co., Detroit, Mich. Doors are so arranged in the sides that medical attendance can be given to the wounded soldiers while they lie prone.

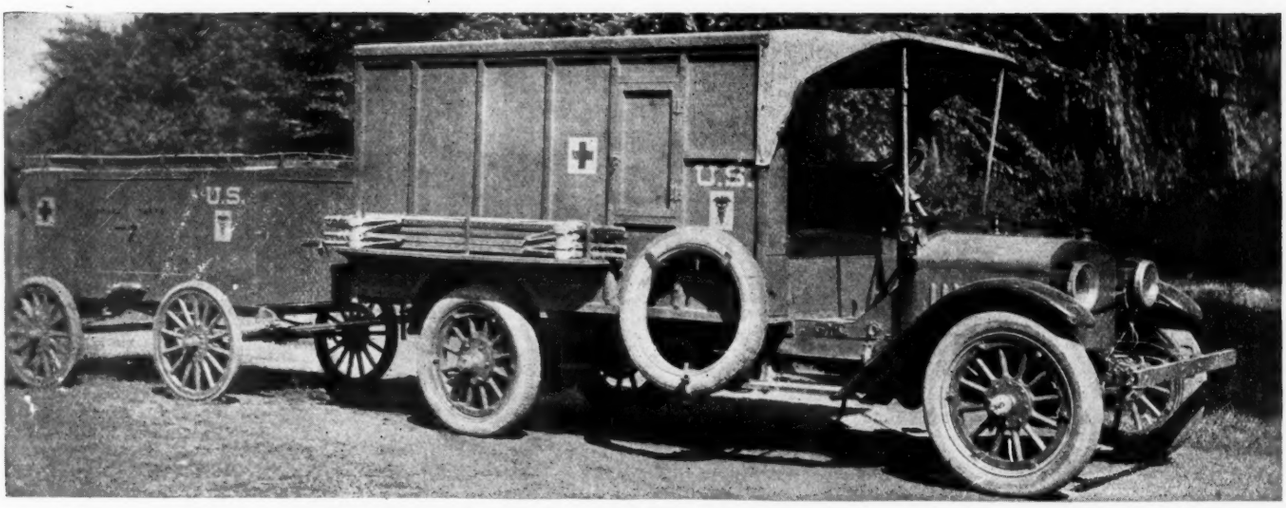
The Ford ambulance, which is known as the service ambulance, is radically different from the original type which has been supplied to the Allies and the Red Cross. The body is made of agasote and is sufficiently long to

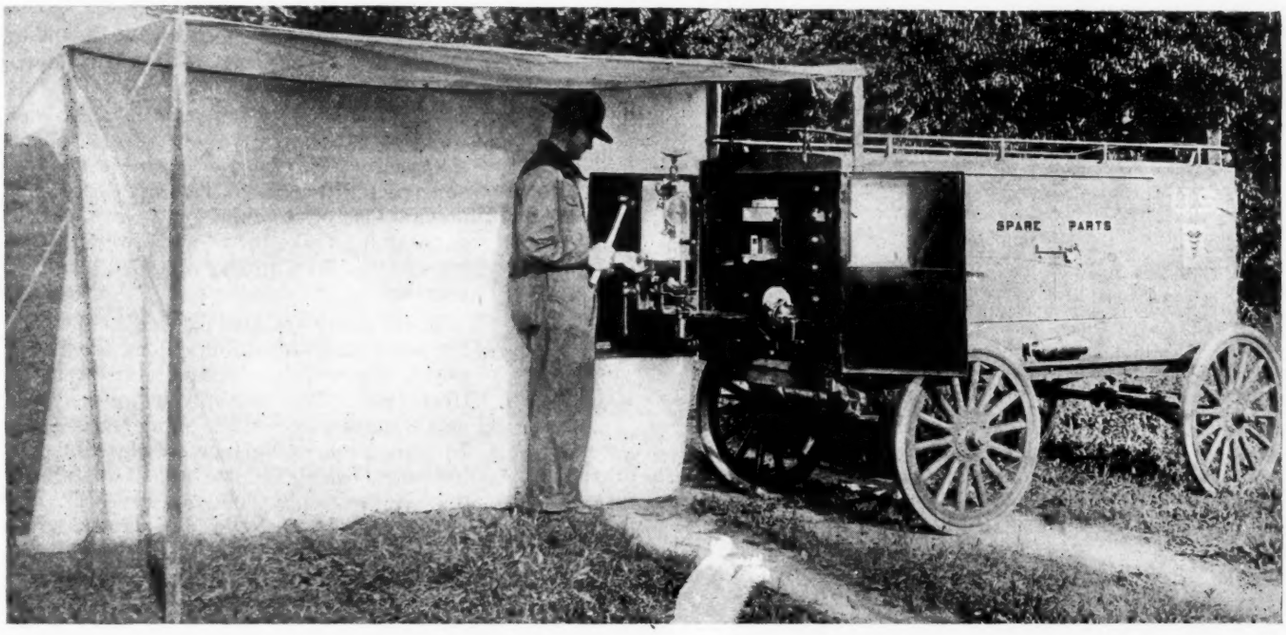


Two views of the new standard Ford ambulance provided the U. S. Army following designs by the Motor Ambulance Service section under Major Fishleigh. The body is made of agasote throughout, is long enough to accommodate the litters, and a redesign of the spring suspension allows an extra 15 in. of wheelbase



The original Ford ambulance which has been supplied in great numbers to the Allies and to the Red Cross. The canvas hoods sticking out in the rear were arranged to care for the ends of the litters. The bodies on these were made of paper, cardboard, wood, or cotton and the tops, of cloth held in place by wooden slats





Above—The new model B 1918 *standard U. S. Army ambulance. The body is made of agasote. The chassis is the G. M. C.* ¾*-ton model No.* 16. *The spare parts trailer can be seen attached to the truck. Below—The rear of the spare parts trailer with the doors open and the shelf let down, making a mobile repairshop*

A rear view of the standard U. S. Army ambulance, loaded

A test of the U. S. Army standard ambulance, the B 1918, *carrying* 2300 *lb., an overload of* 800 *lb.*

Above, the standard U. S. Army litter carrier trailer, attached to the towing ambulance and, below, the standard litter carrier trailer with the curtains up showing the wounded soldiers lying prone and the method of using manpower

completely allow for the litters. In the original type the litters extended beyond the body. The Medical Department under the direction of Major W. T. Fishleigh redesigned the chassis to secure 15 inches more wheelbase and in that way eliminated the great amount of spring trouble which had previously been encountered. Gabriel snubbers are used. The steel dash has been changed to a larger size, affording more protection to the driver.

Can Accommodate Six Men

The capacity of the Ford is three men prone, two lying on the floor and one in a litter swung on straps, or four sitting. All in all, the new type of Ford service ambulance is an exact duplicate of the standard B 1918 ambulance except that it is smaller.

Spare parts for a complete company of 12 ambulances are carried in a trailmobile made by the Sechler Co. The trailer, which is towed by one of the ambulances, has a body made by the Glascock Co., Muncie, Ind., which, in addition to operating as a storehouse for parts, is so constructed that the rear can be opened and protected by a tarpaulin and converted into a workshop. The larger parts are carried in the forward body of the trailer, while the rear is divided into bins that are movable and arranged on shelves. Each bin is numbered. Each small part is tagged and numbered and an index card is fastened to the inside of the rear door, which shows the exact location of each part in the bin.

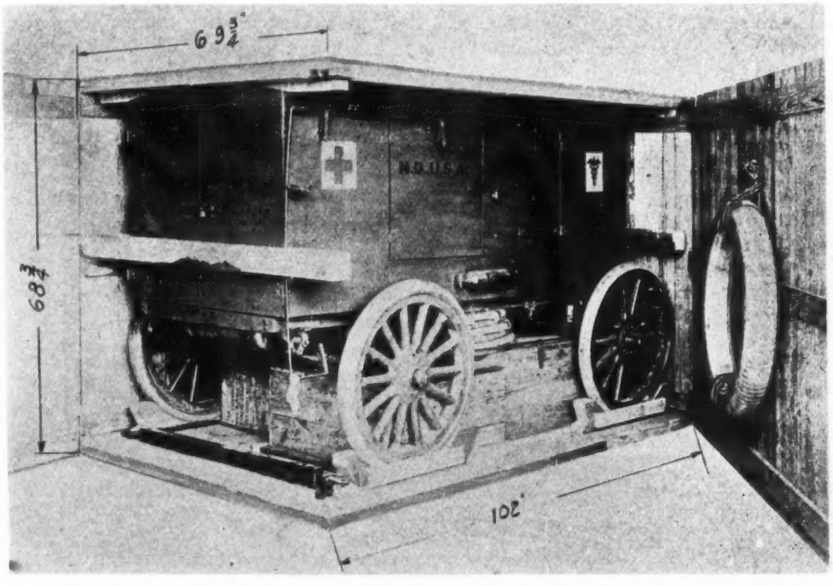
The Indian military model motorcycle, which forms a part of the standard equipment, is collapsible and consequently saves shipping space. This motorcycle differs from the 1917 type in that it carries a separate magneto instead of a magneto dynamo.

Litter Trailer Holds Two Men

The field litter carrier, which is constructed in the form of a trailer and is either towed by a truck or by the soldiers, is being manufactured by Mitchell Motor Car Co., Racine, Wis. The wheels are interchangeable with the wheels of the motorcycle side car. The litter trailer has a capacity for two men prone. It is so constructed that it can be shipped knocked down. One of its chief features is that it is possible to take it by handpower into the trenches to take up the wounded awaiting removal.

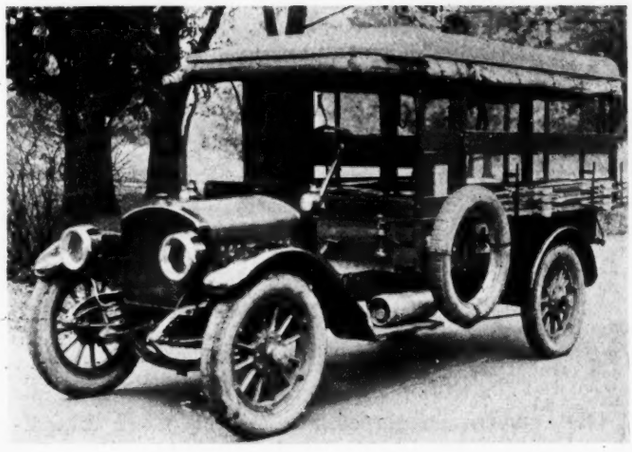
Spare parts are also carried in the towing ambulance, including chiefly the larger parts, the wheels, radiators, front axles, tires, etc. The motorcycles also carry small spare parts stocks under the seats. In fact, each ambulance, trailer and motorcycle is designed to be self-sustaining to a degree, while each company of 12 ambulances and the trailer is intended to be entirely self-sustaining and independent of garages or base service stations which were necessary heretofore.

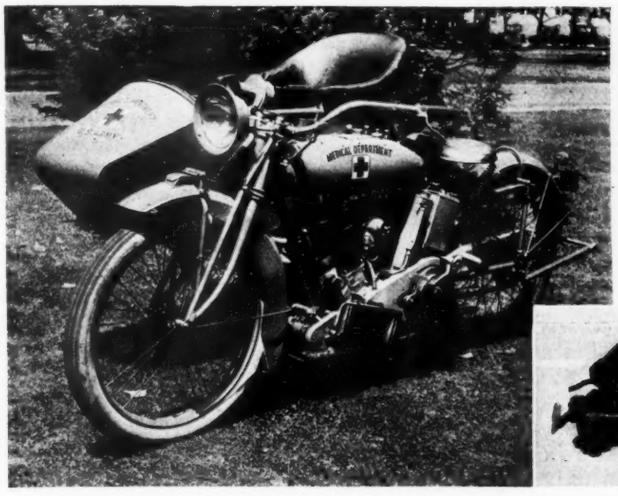
The companies are trained as self-sustaining units.

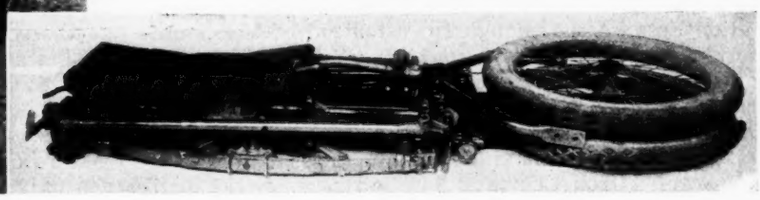


The spare parts trailer in the crate as it is shipped abroad. The boxes beneath the trailer are hauled in the towing ambulance and contain the larger repair parts

Right—The original type of U. S. Army ambulance, with the open stake body mounted on a G. M. C. chassis. Below—The U. S. Army Medical Department standard motorcycle, set up and also ready for shipment







Utah Shale Beds Provide Large Oil Supply

THAT there are vast resources of oil in shale beds throughout the United States is indicated by a report estimating that 42,800,000,000 barrels of crude shale oil and 500,000,000 tons of ammonium sulphate by-product are located in the Utah portion of the Uinta basin, lying in the northeast section of the State. The report of D. E. Winchester, issued by the U. S. Geological Survey of the Department of the Interior, indicates thickness and richness of oil shale beds in many places. Because of the demand for gasoline and for crude oil from which it is made, as well as for the ammonia by-product which is used in fertilizers, rapid progress is being made in producing these materials by investigation, experiments and general development. More than a dozen large companies have been organized in Colorado, Nevada, Montana, Utah and Wyoming and are now experimenting to determine the most efficient and economical way to produce oil from the shale. Aerial tramways are being built to bring the shale from mines opened high on the mountains to retorts built in the valleys near water and other lines of transportation.

Dyes Being Produced from Shale

Experiments are also proving that numerous useful commodities can be made from the shales, such as dyes, explosives and substitutes for rubber, as well as gasoline, kerosene, paraffin and flotation oil, but the industry is not yet enough advanced to tell which of these products or how many can be manufactured at a profit. It is now considered likely that the by-products will prove most profitable.

The Utah oil shale is black or brownish black, finely grained, generally free from grit. It is tough and flexible. When ignited with a match the oil shale burns with a sooty yellow flame. In order to obtain its content of oil the shale will have to be mined like coal, crushed and distilled in huge retorts, in which it gives off crude shale oil, ammonia, fuel gas and other possibly valuable products. Though some of the shale has on distillation yielded more than 2 barrels of oil to the ton, very little of the oil is in the shale in the form of oil. There is much partly bituminized vegetable matter in the shale which can be converted into oil by heat.

Freshly broken oil shale gives off a peculiar odor similar to that of crude petroleum.

Most oils obtained from the distillation of shale are reddish brown and at ordinary temperatures range from a thin liquid to a semi-solid vaseline-like product. The specific gravity of shale oil obtained in the field apparatus ranges from 32.98 degrees Baumé to 26.14 degrees Baumé. It is probable, says the report, that the large part of the difference in the oil from different shale is due to variations in the temperature of distillation. Fractionation of shale oil produces: gasoline (distillate to 150 degrees C.), 7 to 12 per cent; kerosene (150 degrees —300 degrees C.), 28.5 to 49 per cent; asphalt, 0.47 to 4.10 per cent; paraffin, 1.63 to 9.21 per cent; sulphur, 0.40 to 1.42 per cent; nitrogen, 0.887 to 2.198 per cent.

The large percentage of nitrogen it is believed will be lessened in commercial practice by injection of steam during distillation.

The refining of shale oil is a complicated process owing to the many distillations necessary to successfully separate the different ingredients which have varying degrees of volatility and specific gravity. Although the products of the American oil-shale industry will probably differ from the Scottish, where the profit is mainly derived from liquid and solid products, it is expected that the variety of American products will be large also.

The Need for a New Incentive for the Industrial Worker

The Job Alone Does Not Supply It No Matter What It Pays or How Few the Hours It Takes—Maintaining Industrial Morale

By Harry Tipper

THE announcements of the Midvale Steel & Ordnance Company and the Lukens Steel Company regarding their adoption of co-operative administration deserve the thoughtful attention of the manufacturers of automotive apparatus. The steel companies are thoroughly organized and the business as a whole has an enviable reputation of farsightedness in its dealings with workers. Moreover, this is not the first experiment of the kind in the business, as the Colorado Fuel & Iron Company has had a somewhat similar one in process for about three years. The two significant statements in the announcement of the Midvale Steel & Ordnance Company are as follows:

". . . recognizing the fact that the prosperity of their companies is inseparably bound up with the general welfare of their employees, propose, with the co-operation and assent of their employees and for their mutual interests, to establish a plan for representation of employees, which shall hereafter govern all relations between the companies and their employees."

"We recognize the right of wage-earners to bargain collectively with their employers and we hereby invite all employees to meet with the officers of their respective companies for the purpose of considering, and, if practicable, adopting a plan of representation by the employees, which shall be thoroughly democratic and entirely free from interference by the companies or any official or agent thereof."

Guide-Posts for the Manufacturer

This war has indicated, to the student of labor questions and ideas, a number of guide-posts which should be of the greatest value to the manufacturer, whose most important problem is, and will be, the question of how to handle labor so as to procure the most stable and valuable condition. These guide-posts are to be found in the reports of the commissions who have studied labor under war-time conditions in Great Britain, in the history of the strikes over there, in the history of war-time strikes over here and the condition of labor, as shown by the turnover, the production efficiency during the war-time conditions.

The announcement of the Midvale Steel & Ordnance Company shows that the executives of this company have seen at least two of these guide-posts and are to that extent endeavoring to meet the situation in an enlightened and far-sighted way.

It will be noted that the first paragraph of the announcement states specifically that the company proposes, with the co-operation and assent of their employees, to establish a plan for representation of employees, which shall hereafter govern all relations between the companies and their employees.

The epochal character of this statement rests in the recognition of the right, or at any rate the desirability, of the worker having a share in the responsibility for the conditions of his work and remuneration in the particular organization in which he is working.

This announcement recognizes the fact that neither high wages nor shorter hours are in themselves sufficient incentives to secure the maximum production nor the proper co-operative spirit.

It recognizes the fact that so long as the workmen can only secure representation (in their disputes with employers) through the use of general labor bodies, the organization incentive, upon which the manufacturer's welfare depends, is still wanting.

It suggests a recognition of the fact that none of the material things, wages, hours, good factory conditions, steady employment, can cut down the turnover, speed up the individual production, cut out the absences from the shop, or remove the suspicion which has characterized all the disputes between employer and employees under the present system. All these things have, from time to time, provided a temporary relief, but they have not removed the fundamental troubles, nor lessened the number of strikes, disputes, or difficulties with production.

High Wages Do Not Provide a True Incentive

This war has provided the workers of all ranks with prosperity greater than any which they have enjoyed during the memory of any of the workers who are so benefited. It has enabled them to make their own terms as to pay, to secure steady employment and to avoid any of those uncertain conditions which usually interfere seriously with the earning capacity of the average worker.

Yet the record has been the same in Europe and here, the high wages have not kept the worker busy all the time, but have seriously cut into his hours of labor, unless the incentive of patriotism has done what the high wages could not do—waked his sense of responsibility. The reports of industries, where the high wages of the workers have resulted in a serious decrease in the number of days worked, if gathered together for the Allied countries for the period of the war, would show the general failure of prosperity to keep the worker to his work, or to stop the strikes, disputes and other indications of continuing discontent. It has been necessary to provide, in the appeal to patriotism, in the education upon the aims and necessities of the war, the incentive which had not been supplied by all the material progress which the worker has made.

Patriotism the Present Stabilizer

In this country, since April, 1917, the records of disputes, strikes and other causes of loss of production, as well as the important cause of absence from work, have

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been met successfully only when the patriotic appeal has shown the worker a real, definite and idealistic reason for doing his utmost and accepting some difficulties.

In fact, this has become so generally recognized that it is continually used to bring the mass of workers into the unity of action that alone will give the full power to the war machine.

Of course, the experiences of this war have indicated a great many other points in connection with the labor question which cannot be touched upon in this article, but must be left for future discussions. The points to be noted now are the necessity for some organization incentive to the worker in that organizaton and the fact that the job alone does not provide that incentive, no matter what it pays nor how comfortable its conditions are.

The writer was for several years engaged in factory work, and in the course of that training operated every machine in the factory for considerable periods of time, keeping up with the other operators and handling every bit of the routine of the matter. During the same time his spare moments were mostly spent in the company of skilled labor union men, getting their point of view, their ideas and their outlook. Very few of the operations which he had to undertake provided any incentive in themselves, once they were mastered. In fact, they became so irksome from their cramped requirement of mental and physical concentration that the one outstanding thought of importance was—how to get away from the monotony.

Most Work Lacking in Incentive

From a careful examination of industrial work it is a conservative estimate to say that 75 per cent of the work in industry is repetitive, monotonous and lacking in any requirement which will supply either the incentive to good work or the incentive to keep working.

In war time we have successfully appealed to the instinctive ideal of citizenship to provide that incentive, but in peace times we have had no such ideal to appeal to and the material desire of the worker is paramount —the desire to escape from the monotony of his work and secure as much money as possible for the little work he is obliged to do.

This latter, the material desire, has found its expression in the labor union, and, among the more discontented spirits, in the political ideals of syndicalism and communistic collectivism, all of which attempt to cure the trouble by aggravating it.

The real necessity of the case is a co-operative spirit in the manufacturing organization, which can find its expression in some such plan as that adopted by the Colorado Fuel & Iron Company and those now announced by the other steel companies named.

It is not merely that such a step is morally desirable, but it is necessary for the economic stability and progress of industry as a financial matter. It is obvious to the student of human affairs that we are in danger of industrial turmoil, which may be more disastrous than the turmoil of the present war, unless steps are taken to supply some of the necessities for co-operative working out of these important industrial humanity problems.

Industrial Morale

It is really a consideration of industrial "morale" and the means which are necessary to create a splendid morale and keep it.

We have discovered the tremendous importance of morale in soldiers, and how it can nullify advantages in guns, transport, and all other equipment. We have seen the greatest war machine in the world stopped by men who were unprepared a few months previously, and we still marvel at the miracle of it. We have seen the Allies in four years outmaneuver all the science and diligent operations of a fifty-year preparation.

In thinking of this it is well to remember that this is an industrial war.

The whole of Great Britain has been made over industrially in order to fight—and this has been accomplished in less than one-tenth of the time the war was originally prepared. In a few months the United States has created new industries and brought them to such a pitch of perfection that they equal or surpass those which were slowly accumulated over many years of experience.

The War's Lessons for the Manufacturer

As this is an industrial war, what can industry get from its lessons in the importance of morale, incentive, the ease with which technical advantage can be lost or overcome, and the splendor, character and possibilities of the individual when he is aroused?

They show on the positive side what a real incentive will accomplish, while our continual industrial difficulties show what a lack of incentive will disorganize.

We are providing millions of our workers with an incentive which has given them a glimpse of their own possibilities and importance. We have sent millions of them to work and fight for this incentive on the most dangerous mission that most of them have experienced —with the smallest pay they have ever received.

How are we to change industry so that it shall be up to the level of these men? How will we make it possible for them to reconcile their new sense of justice, democracy, their own power and individual capacity with the industrial organization to which a good many millions of them must return?

Obviously we must be prepared to give the human side of our business a great deal more thought than we have been accustomed to give it. It will not do to continue in the attempt to treat these workers as the German government has treated the German people, as though they were to be instructed without any voice in the matter, as though they were to be ordered, driven, and herded in industry without having anything to say about it. These things are not possible if we desire a stable, profitable industry.

Man-power is a new word in industry, borrowed from the war, but it is a good word and one which must be recognized in industry more thoroughly if we are to increase the efficiency of our industrial organizations, provide ourselves with a stable foundation of production capacity and make it possible to pass through the reconstruction period with a minimum of turmoil.

Co-operation and Democracy in Management

It is a good sign of the times that the steel business, with its recognized reputation for intelligent business management, has indicated that co-operation and democracy must become live words in industrial management. It is an encouraging sign that these organizations have seen that the good industrial worker needs to be led, not driven, just as the soldier; and that morale can be better secured by an army of co-operation and understanding.

It is said that the high morale of the American Army is due to the co-operative feeling and good understanding that exists between the officers and men and that this has been established by the training and character of its officers.

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These experiments, undertaken by large stable industrial organizations, indicate that we may hope for the same kind of an army of industry and consequently the same kind of industrial morale, with its economic invincibility.

This cannot be accomplished, however, by the work of a few isolated companies who have seen sufficiently the necessities of the case to take some action.

Neither is it to be expected that any one man or set of men will evolve, at once, a plan which will satisfy the case.

The subject is too large for that; it involves too many factors in human action which are little understood in industry and rarely studied.

It will necessitate the widest study on the part of all men interested in industrial management. It will require the deliberate removal of all the prejudices, misconceptions and misunderstandings which have overlaid the subject until the real possibilities are well-nigh buried in the heap. It will mean a new knowledge of labor movements and a new understanding of men as such. It will necessitate a study of the matter, prompted by the desire for co-operative understanding which animates the officer in the army.

Above all, it calls for the widest interchange of thought and the most careful examination of all plans, with full and free discussion of their practical application.

Only the combined wisdom of the industrial leaders, studying the problem with the energy which has distinguished their study of operating problems, supplemented by the same interchange of ideas and results, will enable us to approach it in the way that its importance and imminence deserve.

A Business Man's Views Regarding Trade Acceptances*

A System of Business Based on the Principle of Good Credit—The Man Who Will Not Accept a Trade Acceptance Is Not a Good Customer to Sell—The Advantages Analyzed

By C. E. Crofoot

THE trade acceptance is not new to the world. We in the United States are simply behind the times in its adoption. England, France and Germany, as well as other European countries, have long used this system to great advantage, in connection with the use of the banker's acceptance, which latter we have used in this country in connection with our foreign trade for many years. The progress of the trade acceptance toward general adoption in the United States has been an outgrowth of the present war. Foreign bankers and business men visiting our country in the interests of business with the Allies soon after the outbreak of the war stood aghast at our antiquated commercial credit machinery and our unfamiliarity and apparent indifference toward so important an asset as the trade acceptance.

The first impetus given to the trade acceptance dates from the War Convention of American Business with the Chamber of Commerce of the United States, held in Atlantic City one year ago this month. At that great convention only subjects of national importance were discussed, bearing upon the relations of business efforts toward winning the war. Under the subject, "Banking and Finance," the trade acceptance was brought out from its obscure position in America in the past by prominent business men who, head and shoulders above their contemporaries, had tried out the method to their satisfaction and profit. In turn the prominent bankers in attendance indorsed the plan almost to a man in view of its opening up an almost unlimited field for extending banking operations. And so the present trade acceptance boom was launched, the rigging of the ship and its preparation for its publicity voyage being left to the joint care of the American Bankers' Association and the National Association of Credit Men.

Under the guidance of these two great American organizations a third came into being, the American Trade Acceptance Council, for the express purpose of furthering this great movement. In addition to the American Bankers' Association and the National Association of Credit Men, the Council is backed by the Chamber of Commerce of the United States and the National Asso-

The Advantages of the Trade Acceptance

Does away with the open account.
Provides a larger line of bank accommodations.
Simplifies bookkeeping.
Creates a better class of customers.
Makes for increased profits by a quicker turnover.
Prevents over buying and promotes careful attention to financing.
Being two named paper is more readily discounted.
Places credit upon a higher plane.
Ties up less capital.
Develops a keener sense of obligation.
Insures more prompt attention to payments when used and in general tends toward the elimination from financial transactions of many of the elements of difficulty and annoyanaces which now embarrass them.

*Read before the Convention of the American Gear Manufacturers Association.

ciation of Manufacturers. What more influential support could it have? At a widely attended meeting held in Chicago last May, the council was addressed by Mr. Paul Warburg, Deputy Governor of the Federal Reserve Board, and from that time the movement has become general throughout the country through the wide publicity campaign of the National Trade Acceptance Council.

The purpose of this article is to aid through such publicity as it may extend to our members and thereby enlist the American Gear Manufacturers' Association in this movement, a movement that can only result in great benefit to ourselves as well as toward the cause for which we are all working to-day. While the association so far as I know has not as yet been asked to recommend the adoption of the trade acceptance method by its members, the advantages to be gained thereby are so obvious that we do not need to wait for any man. Let us take time and opportunity by the forelock and jump on the "Trade Acceptance Band Wagon" even without an invitation. I am sure we will be welcome.

Founded on the Principles of Good Credit

Let us consider just what the "Trade Acceptance Plan" is.

First, we must not forget that it is founded on the principle of good credit. It is for the man who pays his bills. If a man will not accept a trade acceptance, he is not a good customer to sell. We do not want that kind, and the sooner he is eliminated the better. Credit has been defined as "A promise to pay money or its equivalent at some future time"; also as "The power to get goods in exchange by giving a promise or contract to deliver an equivalent at some future time."

Now, then, the question is: What is the best form for that promise or contract to take? Shall it be the open book account or the promissory note or the trade acceptance? Let us see; most of us are now doing business, I venture to state, upon the open book account system. "Is it satisfactory?" "No, and why, because its principle is wrong." It has no foundation and cannot stand even the most superficial examination for merit. It floats upon thin air, settling with its disastrous effects upon the unwary. It requires constant watching with its attendant expense of time, money and energy, and this at a time when man power is at a premium. We have inherited this system from the old Civil War days, previous to which the bill of exchange, the forerunner of the trade acceptance, was in general use. These went out with that war which caused such a demoralization of credits that business went upon an almost strictly cash basis. In order to get cash, merchants and manufacturers had to give liberal discounts, which gradually became lower with the restoration of normal conditions, and then, as the discount rate got down to a par with the rate at which money could be borrowed at the banks, customers were loath to take advantage of the low discount rate, and the custom of taking 30, 60 and 90 days' time sprang up, and this now antiquated system still sticks to us to-day, notwithstanding its utter inadequacy to meet present demands.

The Futility of the Cash Discount

It is true, some of us offer now a cash discount for payment in 10 days, but how much is this really worth to us under the present system? Very little, when you stop to consider what you actually get out of it, that you otherwise would not get if you sold net 30. Those that take the cash discount in strictly 10 days are the customers of good credit who would abide by any terms mutually agreed upon at the time of sale. Others deduct unearned discounts at anywhere from 15 to 51 days, which defeats the purpose of the plan.

You may laugh at a man expecting to get away with a deduction of 2 per cent 41 days after date of invoice, but in the face of stated terms 30 days net, 2 per cent 10 days we once had a customer, notice I say once, who tried to put one over on us like this: "All shipments on the 27th of the month and after will be considered as of the first of the following month. We take 2 per cent discount on the 15th of the month following shipment, providing goods are received in good order within 7 days from date of shipment."

This amounts to 2 per cent at from 51 days after shipment to any old time. We didn't swallow this, but I have no doubt somebody did and is still, as the firm is now in business and must get goods somewhere. The open account, as its name implies, is open and wide open, until it is paid. Open to what? Onslaughts of every description. Returned goods, cancellations, claims for delays, deductions for unearned discounts, shortages, and we are content to take what is left or can't help ourselves, one of the two. We've acquired the habit and are blind to new ideas and methods.

It's Hard to Accept New Ideas

To illustrate:

The story is told of a conversation between a magazine editor and a friend in a Chicago hotel. "Do you use shaving soap when you shave?" asked the friend. "Of course," said the editor; "that's a silly question. Everyone does." "I don't," said his friend. "It isn't necessary. A little water does the work better. It softens the beard quite as well and without lather it's easier to see where you're shaving." "You're just a plain ordinary garden variety of liar," said the editor. "You can't put anything like that over on me."

A year later the editor was making a trip from Chicago to New York. As he entered the sleeper wash-room in the morning he noticed a man standing in front of the mirror shaving. The man was not using soap. He moistened his strong, black beard with a little water and went merrily on.

"I'm interested," said the editor. "Don't you use soap when you shave?"

"Haven't for years," replied the man.

When the editor told the story he said, "For twenty-seven years I used soap when shaving because everybody else used soap, and I had to be hit in the head twice before I could get a common sense idea into my ivory dome.

"I shave every morning," he continued, "and I haven't used shaving soap for a year."

This story was retold some time later to three men at lunch. Two said it was darned nonsense. The third said he knew it to be true. "I use soap when I shave," he said, "because I like it, not because it's necessary. I was in the war both in Cuba and the Philippines," he said. "I couldn't get soap, but I always had as good a shave, although I didn't always enjoy it so much."

So much for the open account.

The Promissory Note

The promissory note has its place in business to-day the same as it always has had. The promissory note given by the debtor to the creditor can be made to cover any kind of business transaction or obligation. It is as frequently given for money borrowed for illegitimate use as for the legitimate; for speculation in the market or for the flotation of stock. Unless the maker of the note is favorably known to the creditor it is not looked upon with favor and sometimes not then. How many of us have not been touched up at one time or another by a

"friend in need," business or social, and eventually stung on his, of course, perfectly good note.

The trade acceptance does not propose to eliminate the legitimate or preferential use of the promissory note. It will, it is hoped, displace it in current transactions in merchandise as well as displace the open bank account. The trade acceptance was devised to represent current transactions in merchandise only, and as such I want to explain its advantages before our members to-day.

What Is a Trade Acceptance?

It is defined as "a negotiable certificate of indebtedness arising out of a *current* transaction in *merchandise*." Notice the emphasis on the words "current" and "merchandise." These are the distinguishing features of the trade acceptance as compared with a draft or promissory note, and are what gave it preferential standing with the banks. It is *not* to be given to cover a transaction of any other character or for a merchandise account past due! The nature of the transaction, therefore, becomes self evident and the paper by virtue of this is entitled to a special rate of discount.

It is true, discount charge must be borne by the seller, but he is glad to assume this for self liquidating paper promptly received in lieu of former losses by the old fashioned loose and expensive open account methods. Then, again, the trade acceptance is planned to be issued for short periods, 30 to 45 days at the longest, and dating from the date of invoice, so that discount is not heavy.

The trade acceptance transaction is completed after its issuance by the seller by its acceptance by the buyer. He writes his name across the face of the acceptance, together with the date and place of payment, and thus assumes the direct credit liability for the merchandise, title of which has passed to him. The transaction thus completes itself in so far as "proof of claim" is concerned and becomes self liquidating by giving the seller negotiable paper at the outset.

We now see that the trade acceptance takes care of a current merchandise transaction in a far better way than any other method, both from the standpoint of reliability and quick results both to buyer and seller. It has no disadvantages except to the old *skinflint*. As he would never accept one, we will let him worry.

How the Trade Acceptances Can Be Adopted

We can adopt the trade acceptance by either of two methods—by previous agreement or by persuasion. We can state our terms under the plan and refuse to sell under any other, or, we sell a concern a bill of goods. We forward invoice together with a trade acceptance drawn upon ourselves at 30 days and ask him to accept it and return to us promptly, provided he does not wish to take advantage of the discount to which he is entitled for payment in 10 days. We follow up with appropriate letters if he does not accept promptly, explaining the purpose of the plan and its patriotic and economic significance. We finally bring him around to the trade acceptance idea within the 30-day period, or, if not, our letters will have had a telling effect toward a settlement in cash long before we would have chased up a delinquent under the old open account system. Some concerns are offering 15 days extra time provided the trade acceptance is accepted, drawing same at 45 instead of 30 days. Undoubtedly other inducements will present themselves as the plan comes into general use.

Our concern is endeavoring to adopt the trade acceptance plan. We made a beginning last spring and have made some progress. Like all other reforms, the sledding is hard at first. The plan needs the help of every member of the A. G. M. A., and in standing together as one influential association, we can accomplish what we desire. In so doing we shall in no small measure help to put the finances of the entire country on a definite economic basis. If we are to whole-heartedly further the trade acceptance movement, we must stand ready to give as well as to receive.

The ball has been started rolling for us; let us get behind it with a will, and before another year goes by I am sure that we can point with considerable satisfaction to our column of assets, and, instead of dead ledger accounts 60, 90 and 120 days old, show trade acceptances at 30 and 45 days; negotiable assets which if we prefer to discount will represent just so much more cash on hand less the interest we shall all be willing to pay for the accommodation. But this ideal liquid condition cannot be attained overnight or without considerable effort on our part. When one thinks of it, why should we as business men finance our customers? That function belongs to the banks.

Let us consider the condition as of the banks on the one side and the business men on the other. We, the business men, buy and sell and cover our transactions immediately by trade acceptances. These trade acceptances will be handled for us by the banks if we desire, who in turn can re-discount them at the Federal Reserve Bank without question or limit. What condition could be more satisfactory than this liquid condition brought about by its being possible to realize immediately upon accounts as represented by trade acceptance?

A Needed Cog In Our Financial Machinery

The trade acceptance satisfactorily supplies the missing link in our financial system to-day. We are behind our allies in its adoption and extended use. In Germany it is interwoven in her almost perfect financial cycle. The question of financing the war gives Germany little concern. Her system was worked out years ago. Food, manpower and raw materials are her desperate wants to-day. Not on account of her lack of planning, but because we have fooled her for once. We finally woke up on preparedness. She figured we never would or could. On the other hand we must begin where she left off on matters of finance or suffer the consequences. We must be alive to the rapidly changing conditions on every hand to day. Never before has there been such an awakening in patriotic spirit on the part of the American people. Let us couple this with a broad vision by the business men into the requirements of the future. Let us not be behind our banking contemporaries. The establishment of the Federal Reserve Bank was the first great step toward the stabilizing of American banking.

The general adoption of the trade acceptance among the business men of America will be another important step forward toward the perfection of our financial machinery, thereby stabilizing business credit.

The time has come to make the use of the trade acceptance plan a national business custom. Our own protection compels it. Good business necessitates it. Patriotism demands it.

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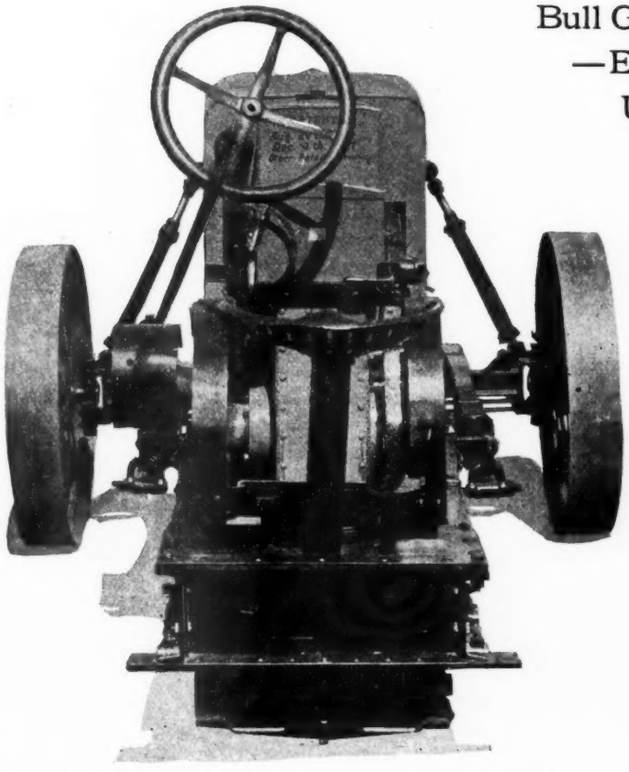
ACCORDING to *Electrotechnic und Maschinenbau*, special apparatus has recently been contrived to measure rapidly fluctuating temperatures such as an ordinary thermometer is too sluggish to record. At the point of measurement, wires of platino-iridium, 0.02 mm. diameter, are inserted and are connected to a galvanometer. The deflection varies with the resistance of the wires, and it is stated that variations in temperature with a frequency of ten per second may be noted. It is anticipated that the apparatus will be specially useful for studying cyclical variations in temperature in the cylinders of combustion engines.

The Belt-Rail Creeper Tractor

Bull Gears Mesh with Teeth on Outside of Track —Engine and Transmission Form Power Unit Supported at Three Points— Spring Mounting for Front Ends



Rear view of Belt-Rail tractor, showing spring stabilizers between axle and radiator frame

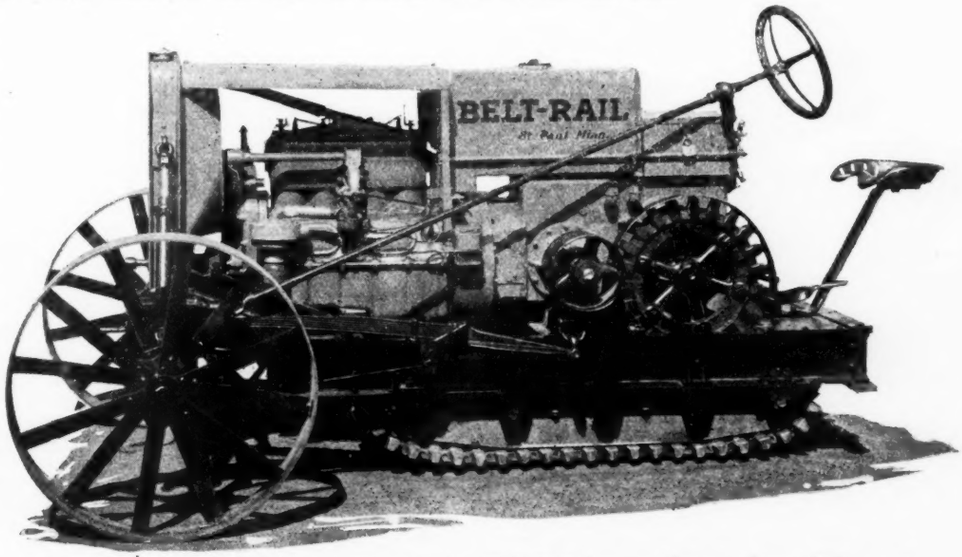
A CREEPER tractor, differing materially in its creeper action from others of the same type, is manufactured by the Beltrail Tractor Co., St. Paul, Minn. The machine is equipped with the Waukesha Model BU4 engine, and has a rating of 12 hp. on the drawbar and 20 hp. on the belt. At a speed of 2¼ miles per hour the drawbar pull figures out to about 2000 lb., so that the tractor should be capable of pulling three 14-in. bottoms under any conditions. The chief claim made for the Belt-Rail tractor is that the unit of pressure of the track on the ground is very low, and the tractor therefore can be used for working in soggy ground, where horses and wheel-type tractors would quickly become mired. Of the entire weight of the tractor only 28 per cent is on the front wheels and the remaining 72 per cent is on the belt-rail, the latter having such a ground contact area that the unit pressure is only 3½ lb. per square in.

It will be seen from the illustrations that the center of gravity of the whole machine is very low, and it therefore has a high degree of stability. As already pointed out, the engine is the Waukesha BU4, which has a bore of 3¾ in. and a stroke of 5½ in., giving it a piston displacement of 232 cubic inches. According to the rating of the engine manufacturer, this engine develops 40 hp. at 1650 r.p.m. It is of the unit power plant type, and the transmission casing is built integral with it. The whole assembly is mounted on the frame with a three-point support, there being a central swivel support at the forward end of the engine and two points of support at the rear end of the transmission housing.

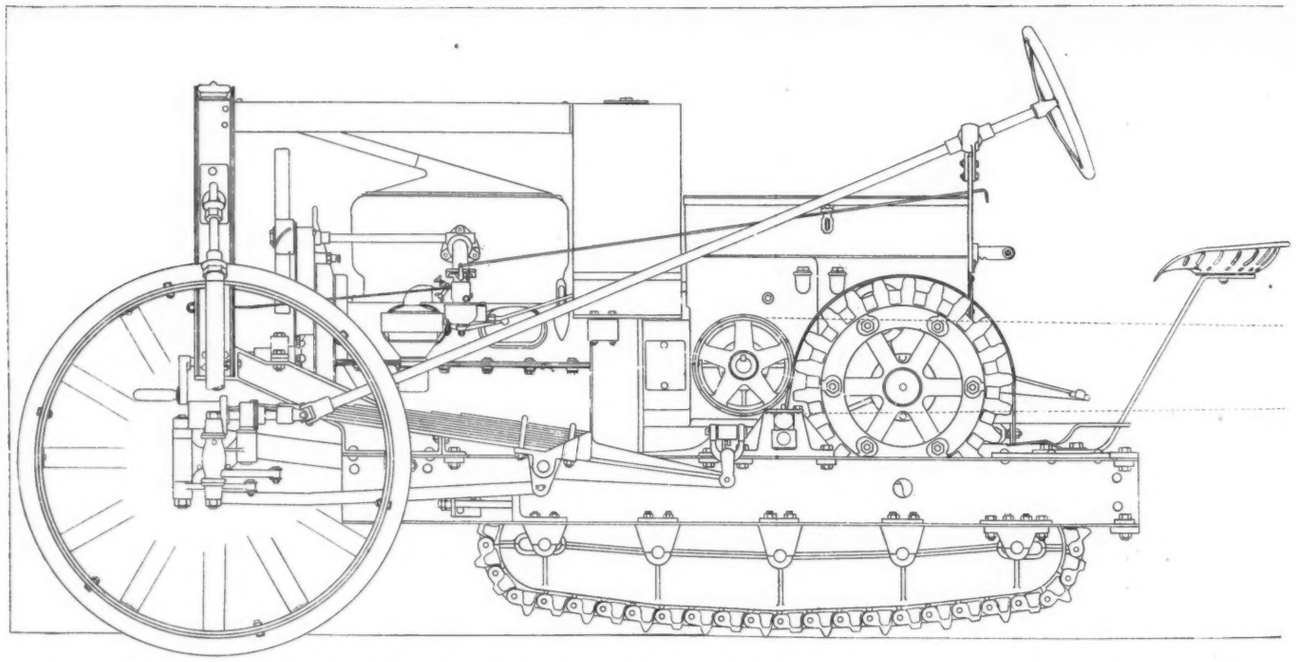
Runs on Gasoline or Distillate

A Kingston Model L carbureter is fitted, and either gasoline or distillate can be used as fuel. The fuel is carried in an 18-gallon tank, located in a rather high position directly behind the engine, and is fed to the carbureter by gravity. All air drawn in by the carbureter is passed through a Bennett air-cleaner. The speed is controlled by a Waukesha governor, built integral with the engine. Ignition is by a Dixie Model 46 magneto.

Water is the cooling fluid used, and is circulated by a centrifugal pump through the Sparks Withington radiator, the whole cooling system having a capacity of 10 gallons. The radiator core measures 18 x 21½ x 3½ in. Back of the radiator is mounted an 18-in. fan, which is driven by a 1½-in. flat belt.



Power is applied to the creeper of the Belt-Rail tractor through large bull gears, meshing on top of the belt. Note cantilever springs for front axle



Side view of Belt-Rail creeper tractor. Note air cleaner on carbureter, power pulley and bull gear drive on belt

The clutch, which is fully inclosed, is of the dry disk type, comprising three driving and two driven disks, the driving disks being faced with asbestos on both sides. In addition to the two driven disks, the cast-iron end plates, of which one is bolted to the tapered forward end of the clutch-shaft, and the other is adapted to slide along that shaft, also take some of the torque. Studs riveted into the fly-wheel web serve as the driving members, and the driven disks are treaded over spring bolts, which are riveted into the clutch flange. The fluted shaft of the transmission is supported at its forward end in a ball bearing in the flywheel flange. A ball thrust collar is used for the shifting lever.

The transmission affords two forward speeds, of 2¼ and 3½ miles respectively, and one reverse speed, equal to the low forward speed. Power for the belt drive is taken off the forward end of the fluted shaft, through a pair of bevel gears. The shaft on which the two sliding pinions slide is the lower of the two in the transmission case. On the upper or secondary shaft there is a bevel pinion at the rear end, meshing with the bevel gear on a jack shaft. This same shaft, which is 1 15/16 in. in diameter, also carries an 11-tooth spur pinion meshing with a 34-tooth spur gear on a parallel shaft. These two reduction gears, bevel and spur, are inclosed in the same housing as the transmission gears, though in a separate compartment. Hyatt roller bearings are used in the transmission, in conjunction with Bantam thrust bearings.

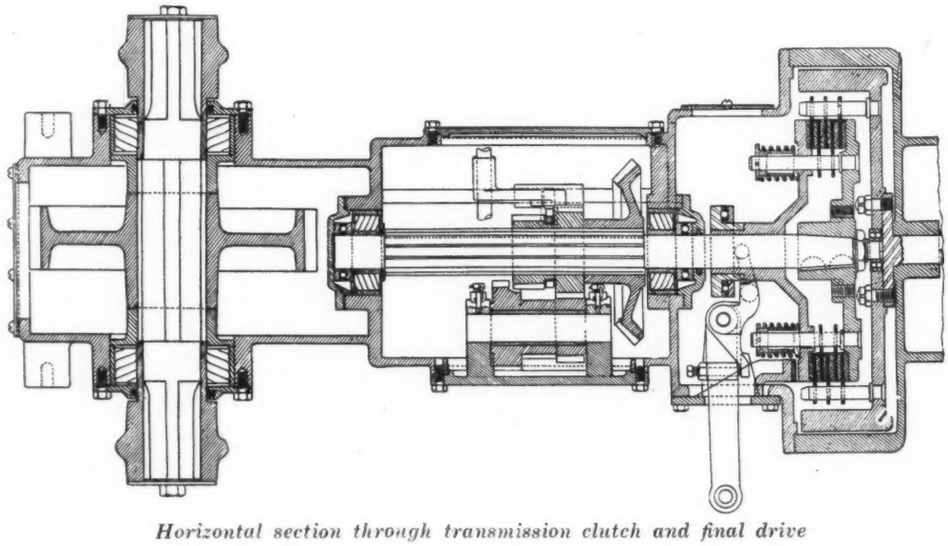
The final drive is through bull gears, which mesh with teeth on the outside of the belt-rail. There are two of these gears, one on either side of the transmission case. The bull gears are 22½ in. in diameter. The width of the track is 21 in. and its length 48 in.

The belt pulley shaft is mounted in Hyatt roller bearings. The pulley is 10 in. in diameter, and has a width of face of 6 in. The gearing is such that at normal engine speed the belt speed is 2500 ft. per minute.

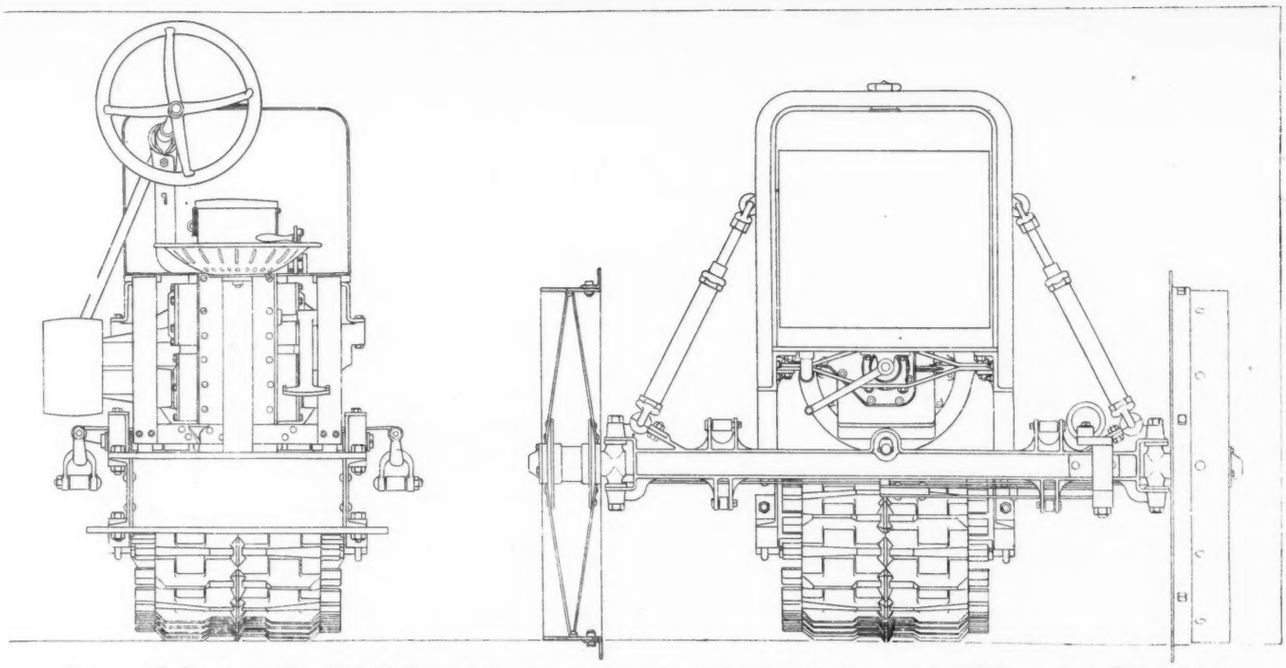
Track Rollers Adjustable for Wear

As in other creeper tractors, the weight of the tractor is supported on the track through a series of rollers, five in number. Of these rollers the two outside ones are adjustable lengthwise, so as to permit of taking up any slack in the track due to wear of the joints. The rollers for the track are of the spool type, and their shafts are mounted on Hyatt roller bearings.

The front axle is secured to the frame at the forward end by a sort of pivot and sliding joint; quarter elliptic cantilever springs are used between the frame and the end of the front axle, and there is also a radius rod



Horizontal section through transmission clutch and final drive



Rear and front of the Belt-Rail tractor, showing on the right the attachment of stabilizers to radiator frame

connection. What is known as a stabilizer consists of two coil springs, extending between brackets near the steering heads on the axle, and hooks secured to a frame surrounding the radiator. These permit of the track accommodating itself to sloping ground. The steering wheels are 36 in. in diameter, and are controlled through a screw and nut steering mechanism, operated by means of a hand wheel. The tractor has a turning radius of 9 ft. The frame is built up of 7-in. channel steel. The drawbar may be attached at two different heights, 11 and 18 in.

The weight of the tractor complete, without fuel or water, is 4500 lb.

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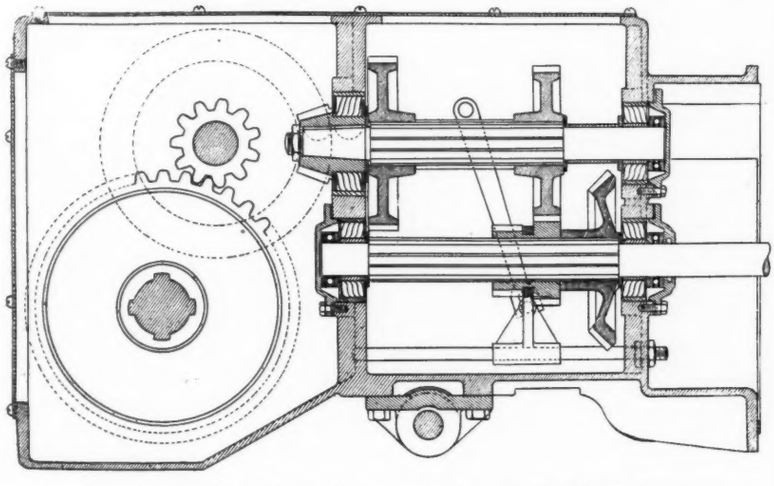
Special Threshers for Gas Tractors

ON a former occasion mention was made in these columns of how the advent of the tractor had resulted in changes in the design of such farm implements as plows and binders. Plows for tractors are made more rugged to stand the less yielding draft of the tractor, and in some instances they are made with more sloping mold boards to permit of higher speeds than that attained by the plow horse. Binders have been made to cut a swath of 10 ft. so as to better utilize the power of the tractor without wasting man-power in providing operators for a number of binders hitched in tandem.

During the past year there has been a notable change in the demand for threshing outfits. Until quite recently it was the custom throughout the Middle West, as well as in some other sections of the country, to let out the threshing to contractors who owned steam power threshing oufits. These were large outfits with 36-in. or 42-in. separators requiring from 18 to 20 men to operate them. The contractor, however, furnished only three or four men, perhaps an engineer, a fireman and a water wagon driver, and the rest of the help was secured by neighboring farmers helping each other out.

In pioneer days this no doubt seemed the most economical method, but it has certain disadvantages. The task of boarding 18 or 20 men for two or three days is in any case a most arduous one for the farmer's wife, and is rendered more so by the uncertainty as to the arrival of the thresher, dependent upon weather conditions, breakdowns, etc. Also, when a large number of farmers use the same outfit, some will have to thresh when conditions are not propitious, as when the grain is wet or when it has stood so long in the shock that much is lost by "shelling out" in handling.



Vertical section through transmission of Belt-Rail tractor

As a result of the conditions outlined, there has been a brisk demand during the past year for small threshers adapted to be operated by a three-plow "gas" tractor. It is natural that the farmer who has money invested in a "gas" tractor does not cherish the idea of spending additional money hiring a steam traction engine for his threshing. These small threshers are sometimes referred to as "individual threshers," because they sell largely to farmers for use on their own farms only, but in some cases farmers owning tractors and small threshers will do custom work for some of their neighbors, and in others several farmers in the same neighborhood will buy a thresher together. As only three or four men are required to operate these threshers, the difficulties experienced in accommodating the large thresher crews of former years are obviated.

It is the conviction of a number of leading implement men that the days of the large steam threshing outfit are numbered. The new small thresher is more convenient.

Some Thoughts on Bombing Plane Engines*

By a Foreign Expert

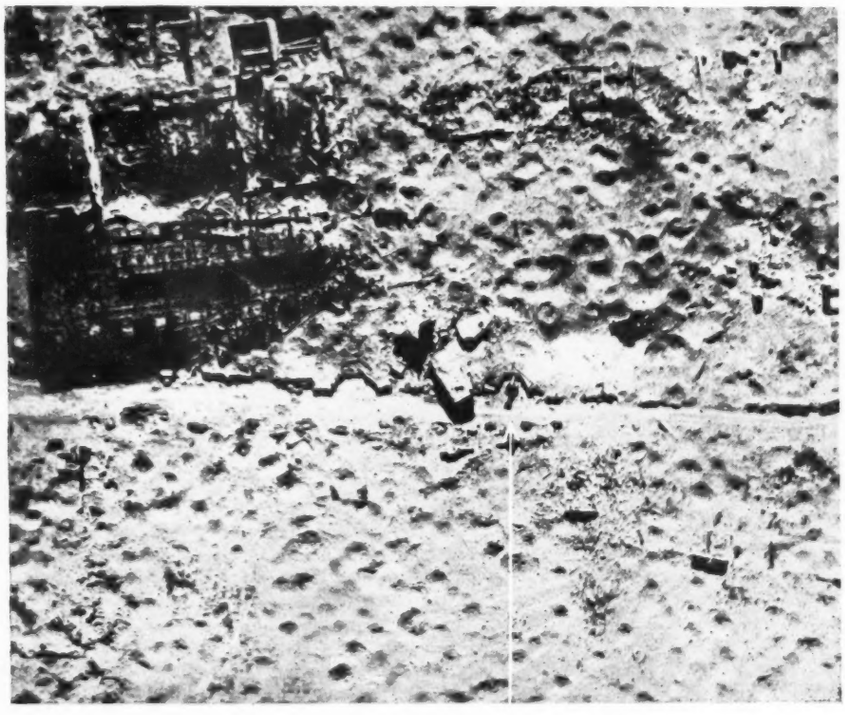
FROM the point of view of the pilot, reliability is a prime essential in an aeroplane, and to judge from results, the upright type of engine would appear to be considerably more reliable in the long run than the Vee type. One has only to look at the number of long distance raids undertaken by the enemy and the extraordinarily low percentage of engine failures to realize this. Simplicity is the keynote of efficiency, and incidentally reliability. Surely the following comparison speaks for itself. Take two typical English and one typical German engine of identical horsepower, the 250 hp. Rolls-Royce, the 260 hp. Sunbeam and the 260 hp. Mercedes.

	Rolls-Royce	Sunbeam	Mercedes
Number of magnetos	4	4	1
Number of ball races	22	17	1
Number of cylinders	12	12	6

The principal figures in the foregoing comparison, worthy of note, are the number of ball races. There is at present a serious shortage of a particular grade of steel necessary for the manufacture of ball bearings, which is likely to become acute in the future, so in designing the ideal engine it would appear to be necessary to cut down the excessive number of ball races, as in the Mercedes. The Sunbeam and the Rolls-Royce are high speed, high compression engines, while the Mercedes is a low revolution and low compression engine. Yet which has proved the more reliable under active service conditions? Undoubtedly the Mercedes. What is most needed in an aeroplane is a "margin of power." No automobile engine could be expected either to run reliably or to last any lengthy period of time if it were constantly run on full throttle. The principal reason for its reliability lies in the fact that it is constantly running at different speeds, and seldom on full throttle for long. (Of course, I realize that a car engine has many advantages over the aeroplane engine, as regards solidity and strength of build, but the foregoing is the principal cause of its reliability.)

So far no aeroplane engine has been built or even designed which pretends to yield this much-needed "margin of power," least of all the Vee types. Unless they are running practically "all out" the difficulties of carburetion are such that the engine does not fire evenly on all cylinders. Colloquially stated, no Vee type engine will "tick over" evenly at a slow speed for long, and until an engine is designed which gives this "margin of power" it is not worth while any firm taking up the question of aerial transport from a commercial point of view, because engine failure will remain more or less a lottery. Of course the present type of aeroplanes could be used (with slight modifications), perfectly easy for commercial purposes, but the profits would be totally inadequate even to defray expenditure in overhauls, crashes, etc., or the prices would have to be made so excessive that nobody would take it up.

*While not agreeing with all the views expressed by the author, we print this article because it calls attention to some important truths.—Editor.



Ammunition stores and batteries as seen from an Allied airplane over German lines. This photograph reveals clearly a 21-c.m. howitzer gun in the open. With this photograph and the aid of an air observer an artillery commander can quickly demolish the gun

Reliability Better Than Speed

Now that we are proposing to undertake the bombing of German towns on a large scale, reliability will be more of an essential than speed, and yet nearly every engine designer persists in designing these high efficiency multi-cylinders, short stroke, high revolution engines, which can only be compared to a racing car. The specialized racing car is tuned up for one race and for one race only, and if that race happens to be a long one, it very often happens that the car is of little use for anything else afterwards because it has been "driven to bits." If you wanted to make a long journey as quickly as possible by road, which would you choose, the specialized track racing car or the high-powered roadster? Undoubtedly the latter,

because, though not capable of such high speed as the racer, it would prove to be far more reliable under adverse conditions. Similarly, if you wanted to travel a long distance over hostile territory and were well armed, speed would not matter to nearly such a great extent as the staying power of your engine. For an engine to be reliable it must be simple in design, and if it has to run constantly at the same speed the revolutions per minute must be low.

Success Depends on Pilot's Morale

There is another point which seems to have escaped the notice of a great many of the present-day engine designers and that is that the success of an expedition very largely depends on the morale of the man who pilots the machine. If this man knows that his engine is not going to let him down, that it is reliable, he will have a greater chance of making a success of his raid than if he is constantly waiting and listening for engine revolution to slacken down.

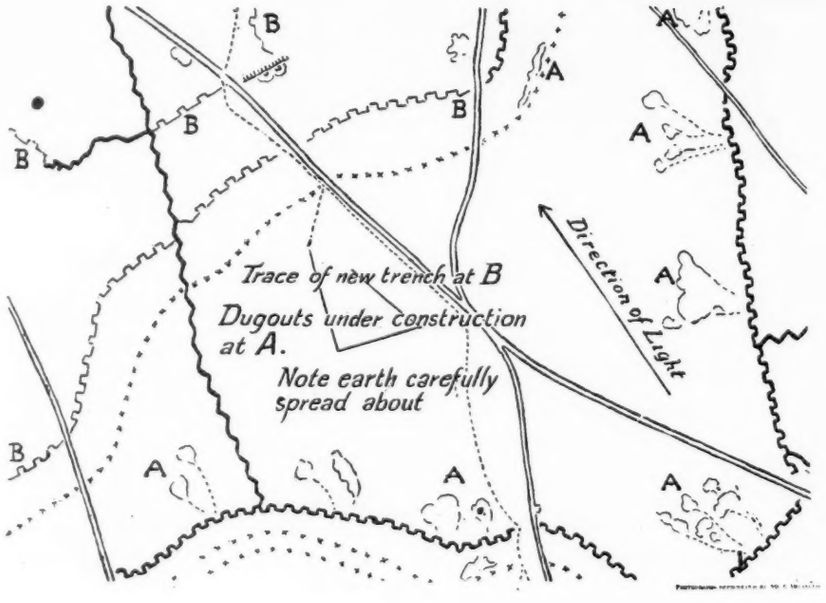
I know of no worse feeling on this earth than to be piloting a machine behind an engine that is known to be unreliable, over hostile territory, and to be living in fear of engine failure. In time one imagines that one hears strange sounds in the beat of the exhaust. All the time one is constantly keyed up and listening for things of this nature, with the result that after a time you begin to hear things which don't really exist and eventually, if you fly this type of machine long enough, your nerves give away altogether.

Again, there is another point which is worthy of note, and that is that no Vee type water-cooled engine has ever run for nine consecutive hours in an aeroplane. In engines of this type, unless accurate balance is maintained, the vibration becomes tremendous, and even when the engine is running sweetly, the vibration which extends to all extremities of the machine is quite considerable.

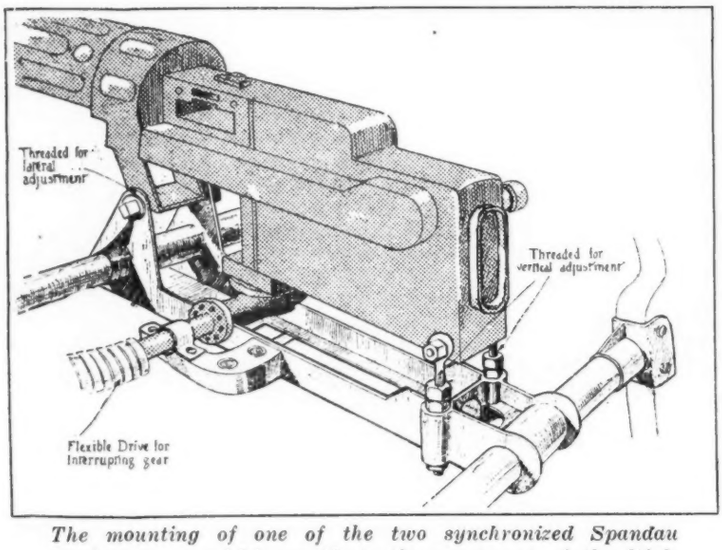
What are the principal advantages of the Vee type engine over the upright engine in car design? Simply that you get one explosion for every quarter revolution of the roadwheel, together with great rapidity of acceleration, neither of which is of the slightest use in an aeroplane.

Some of the points in favor of the upright engine are ease of over-haul, facilities for rapid production, no duplication of fittings, reduction of head resistance, in most cases direct drive. Above all this the Vee engine is only in its infancy and is just beginning to be adopted by car designers, and will have to run the gamut of many alterations and improvements before it is finally, if ever, adopted.

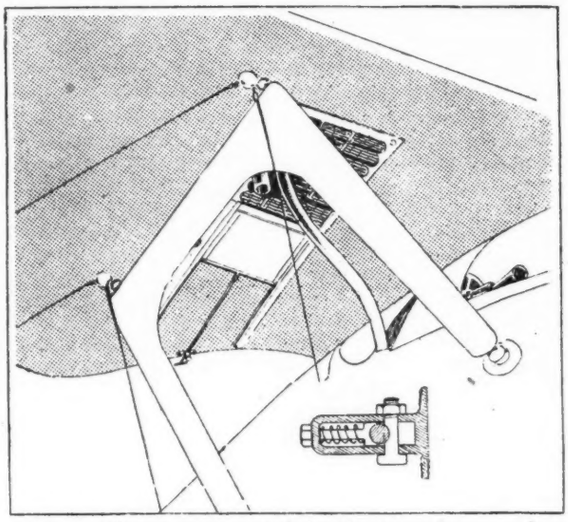
Making War Maps by Camera



The above view, taken from an Allied airplane over the enemy lines, shows clearly the importance of air photography for the detection of new trenches and dugouts under construction. The method of detecting the important points in photographs is illustrated by the diagram, which is the result of tracing from the photograph the objects worth investigation and study without the confusion of the unnecessary details. For example, near the trenches marked A the enemy has thrown up considerable ground to create confusion to observers. This soil, however, indicates dugouts under construction. The new trenches, marked B, are known by the absence of the heavy shadows which mark the deeper finished trenches



The mounting of one of the two synchronized Spandau machine guns which constitute the armament of the Pfalz



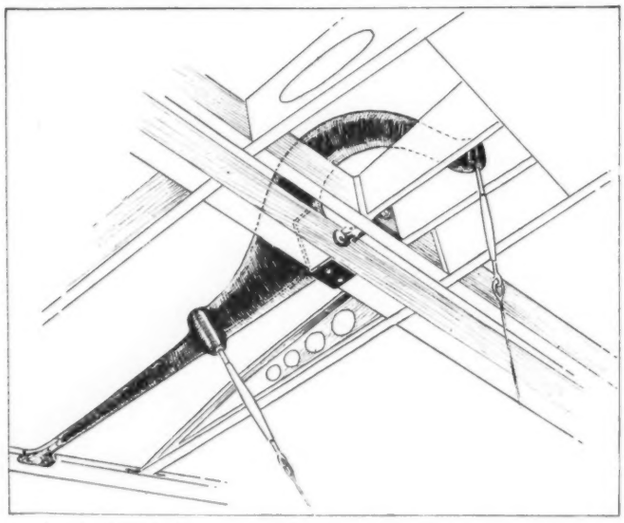
The radiator is mounted in the top plane, and the cooling is variable by means of a shutter

The Pfalz Single-Seater Fighter

Part V

Attachment and Construction of Inter-plane Struts and Compression Tubes—Mounting of Armament

THE top plane of the Pfalz is supported from the body by two inverted, flattened U's, as mentioned and illustrated in our last issue. The attachment to the top plane is of a similar character, as shown at the top of the following page. The upper corner of the center-section struts is provided with a sheet steel shoe to which is welded a socket or cup. A bolt passing vertically through the spar terminates in a ball-shaped head, which fits into the cup, and a taper pin passing through ball and socket locks the joint. The inter-plane cables are attached to little anchor pieces shaped as shown in the sketch, terminating inside the larger cup in a wide head shaped to fit the internal curve of the cup. A certain amount of play is therefore allowed. The right-hand sketch in this illustration shows, from a different point of view, the corresponding fitting on the rear spar.



A steel tubular crank lever made from two halves welded together along the seams is used for operating the ailerons on the Pfalz

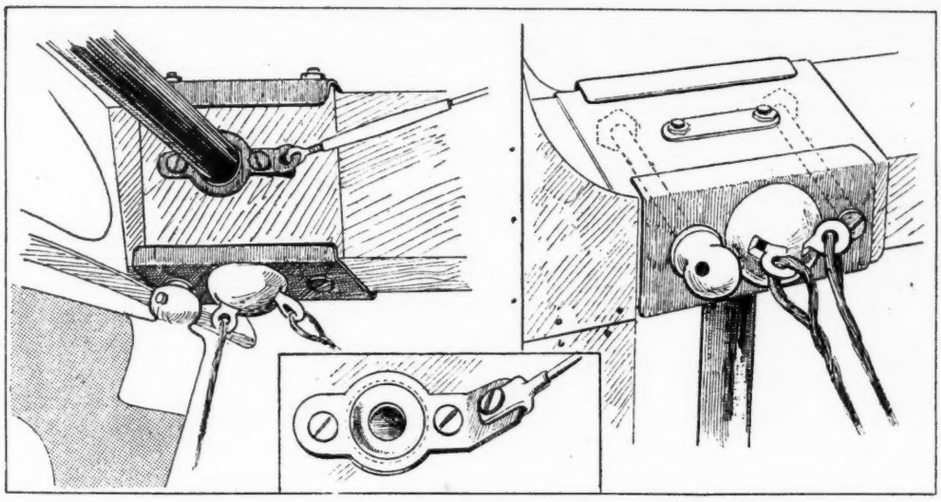
The internal compression tubes of the wings are secured to the spar by a very simple fitting, shown in the inset sketch. A small steel plate is stamped out to form a shallow projection, the diameter of which corresponds to the internal diameter of the compression tube, which is thus prevented from slipping on the spar. This sheet steel plate is secured to the spars by two horizontal bolts, and its ends are shaped to form the lugs for the attachment of the drift or anti-drift wires, as the case may be. The drift wires of the Pfalz are in reality tie rods of circular section, threaded at their ends to fit directly into the barrel of the turnbuckles. The anti-drift wires are solid wires of about 12 gage size.

The Inter-plane Struts

The inter-plane struts of the Pfalz are approximately of Vee form, although they do not quite come to a point at their lower ends. In section they are, needless to say, stream-line, and constructionally they are built up of various laminations, as illustrated herewith in section. The two outer layers are spruce. Then come, one on each side, two layers of three-ply, while the center of the strut is formed by a piece of spruce. The whole is then covered with fabric. The same construction is employed for the center-section struts. The angle formed by the vertical and horizontal arms of these struts is elaborately built up of laminations, the grains of which cross one another at various angles. The strength appears good,

but the struts are certainly not light, compared with the ordinary hollow or even solid spruce strut.

The attachment of the inter-plane struts to the bottom plane is interesting. As the horizontal arm of the struts is shorter than the distance between the spars of the bottom plane the struts cannot be attached directly to the spars. Instead, they are attached, by means of the usual Pfalz ball-and-socket joint, to a compression tube. Owing to the fact that this tube is subject to a lateral load, being loaded both as a strut and as a beam, the usual compression tube attachment already referred to would be inadequate. Instead, the arrangement shown at the bottom of this page is employed. The compression tube is unlike those used elsewhere in the planes, inasmuch as it is not of circular section, but is flattened so as to have flat parallel sides and a top and bottom forming arcs of a circle. At its ends this tube is welded to a base plate of channel section, which partly surrounds the three sides of the wing spar. Before being welded to its end plates the tube is slotted at its ends to accommodate the lugs for the drift and anti-drift wires. These lugs are formed by bending a piece of sheet steel to a channel section, the bottom of the channel being welded to the base plate and the arms welded to the compression tube. The horizontal bolts securing the base plates to the wing spar have their heads filed flat so as to pass between the two drift wire lugs, and are thus at the same time prevented from turning when tightening up the nuts on the other side of the spar. The details of this part of the wing will be clear from the illustration.

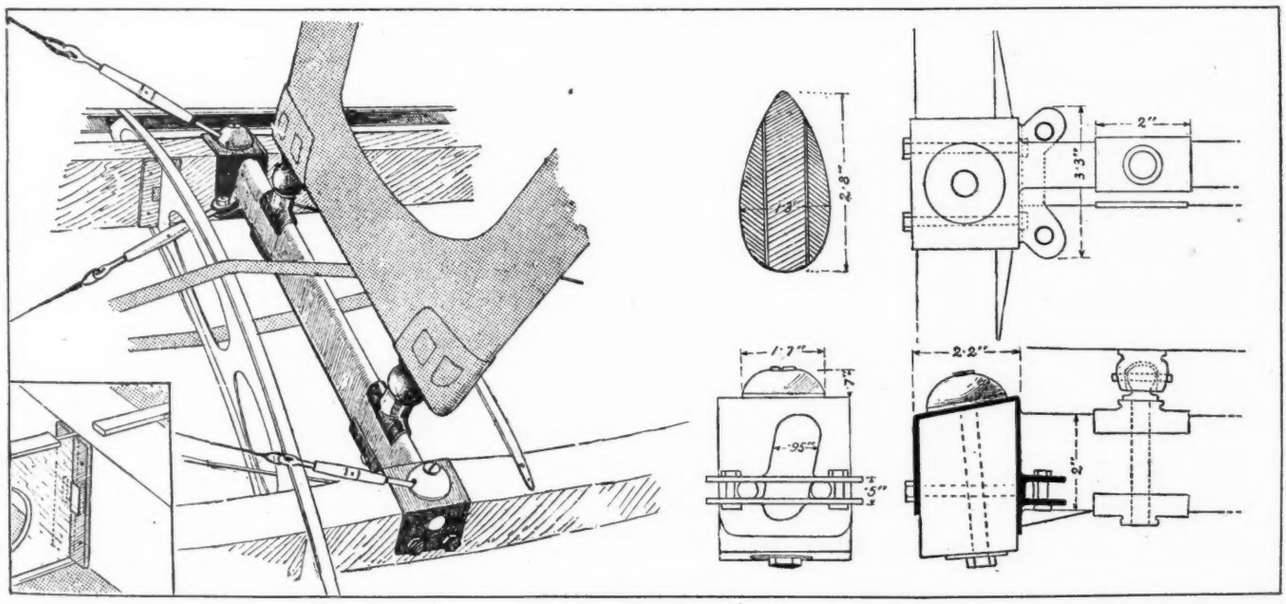


Details of the steel compression tubes and the attachment of the tie-wires on the Pfalz

The general arrangement and spacing of the wing ribs of the Pfalz were shown in our last issue. Constructionally the ribs are built up in the usual way of three-ply webs and spruce flanges. False ribs occur between the main ribs, running over the top of the spars, from leading edge to rear spar. These false ribs are made of ash. In connection with the main ribs mention may be made of a rather neat arrangement for attaching the ribs in place on the spars. As usual the rib flanges are tacked to the top and bottom faces of the spars. In addition the ribs are prevented from sliding along the spars by two vertical pieces of wood, each tacked to the spar. In the middle these vertical pieces are slotted to accommodate a small square block of wood about ½ in. square—which is glued to the face of the spar. The end of the rib web is recessed to give room for this block, the effect of which is, it will be seen, to relieve to a certain extent the shearing stress on the rib flanges at the corners of the spar. It is only a small detail, but it is worthy of mention, and has been included in the large illustration herewith.

The crank lever of the ailerons is shown in another of

(*Continued on page* 604)



The V-form inter-plane struts are mounted on a steel cross-tubular member, as shown above. The struts themselves are of laminated wood as indicated in the section. The small insert in the corner shows the method of attaching the wing ribs to the spars

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Automotive Industries-The Automobile is a consolidation of The Automobile (monthly) and the Motor Review (weekly), May, 1902, Dealer and Repairman (monthly), October, 1903, and the Automobile Magazine (monthly), July, 1907.

The Desirability of Parachutes for Airplanes

EVERY seagoing vessel carries its life boats to which the passengers and crew may repair in case of shipwreck. A life boat is not an absolute protection to the sailor, yet it is the means of saving a large proportion of those who would perish at sea if no such safety devices were carried.

When an airplane is seriously damaged while in flight the occupants are in about the same predicament as the crew of a foundering ship without life boats. The thought has naturally occurred of equipping airplanes with parachutes, which would enable the aviators to jump and descend safely to earth in case the machine took fire, became uncontrollable or was badly damaged by enemy gunfire. Parachute descents from balloons have been made for a great many years and the development of a reliable parachute should in itself not present any insuperable difficulties.

Of course it must be light and compact, so it does not detract too much from the speed, climb and ceiling of the machine. Probably one of the most difficult engineering problems connected with the proposition would be that of a reliable method of attachment to the plane.

British and German Experiments

Many times in aerial combat aviators are seriously wounded and would not be able to take advantage of a parachute carried "on board," yet it is felt that a device of this sort would save many lives, and after it had once proven its efficacy its presence on the machine would tend to save the nerves of the occupants. The subject of parachutes has received widespread attention in the British press of late, but as yet no steps seem to have been taken to provide them on British war planes. A recent unsuccessful demonstration, which resulted in a fatality, may have the effect of retarding the adoption of the device, though the accident is said to have been due to fault in the attachment and in no way to the parachute itself.

On the other hand, the Germans have begun to equip their fighting planes and recent advices from the British front in Flanders record two escapes of aviators from Fokker biplanes shot down by the British. It would appear from the description given that the device functions automatically, filling with air in consequence of the quick fall of the plane and pulling the aviator out of his seat. If safe landings were effected we will no doubt soon see parachutes made regular equipment of all war planes.

The Eight-Hour Day as a Basis for Wages

IT is considered probable that practically all of the large steel producing organizations will follow the lead of the United States Steel Corporation in the adoption of the 8-hour working day for employees.

The 8-hour day is the goal for which the working man and labor union have been striving for many years. It has become a sort of fetish which the laborer has worshipped. Whatever conception he had of it and its advantages at the beginning of his fight for it has been modified during the long process of evolution which has been necessary to bring big business, as typified by the Steel Corporation, to a realization of the justice and advisability of granting it now.

What the working man gets, in this case at least, is not an actual working day of 8 hours but a day of that length which is used as the basis of computing his pay. The actual 8-hour day could not be granted now and the laborer understands why. He knows as well as any one that production cannot now be allowed to fall off. He will continue to work 10 or 12 hours a day, as he has during the recent past, and a cold calculation in the accounting department will show that he will be getting for his efforts what is in reality a wage increase of less than 10 per cent.

They Are Not Buying Liberty Bonds in Belgium

THE manufacturers of Belgium and Northern France are not buying Liberty Bonds.

Some of them are paying tribute to the Hun at a rate which makes our excess profits tax look like a miser's contribution to the village poor-box.

Those who are not paying tribute have already paid the ultimate price of all victims of the Great World Monster—complete annihilation.

The difference between the Belgian manufacturer and the American manufacturer in this respect is merely a difference of distance from Berlin.

We know this now.

We know, too, what the Hun is and what he tried to do.

We know what his methods are and what he thinks of human rights and human life.

We know his ideas of liberty.

We know our duty at this particular time and we will do it.

$6,000,000,000 worth of Liberty Bonds must be sold—will be sold before the end of another week. The time for explaining why we should buy these bonds has passed. No explanation is now necessary. Everyone knows now not only that it must be done but that it is the one and easiest thing to do.

Everyone knows now that a Liberty Bond, if it paid no interest and never would be redeemed, is still the best investment ever offered in the history of the world, measure its value in any way and by any standard you may choose. Everyone knows this now, Mr. American Manufacturer, you and all of your employees, down to the most unimportant one among them. You need *not* to sell your helpers Liberty Bonds. You need merely give them the opportunity to buy them. And you will do it.

Whether or not yours is a 100 per cent organization depends wholly upon what steps you take to make it so.

And keep this in mind. It is most fortunate that you and your employees do not have to *give*. It is the glorious privilege of both of you to *lend* as our fighters fight.

□ Latest News of the

Truck Plans of Car Makers Halted

Government Ruling on Starting Industries Brings Change —Several Affected

DETROIT, Oct. 1—Many passenger car manufacturers in this territory who some time ago announced their intention of entering the truck manufacturing field are obliged to change their programs owing to the Government's ruling relative to starting of new projects.

Among those affected in this territory are Paige, Oakland, Willys-Overland, Olds, Briscoe and Columbia—all passenger car builders. All of them went to more or less expense in preparing their plants for the production of truck models and now must lay aside these activities at least until the war is over. They will all concentrate their efforts on war work.

Nearly all these affected manufacturers, however, will preserve their plans —just stop where they are now—and as soon as the Government gives the word "go" it is their intention to continue from where they left off.

Practically all the truck manufacturers here are on government work—that is, very little of their production is going to commercial fields. The Federal has no trucks going to its dealers.

—

Chandler Delivering Tractors

CLEVELAND, Oct. 2—The Chandler Motor Car Co. has reached quantity production on its 10-ton artillery tractors and has delivered 100. It is expected that monthly deliveries will increase rapidly and that 1000 tractors will have been turned over to the Government by Jan. 1.

—

Paige Nearly 100 Per Cent on War Work

DETROIT, Oct. 3—The Paige-Detroit Motor Car Co. is rapidly nearing 100 per cent war work and will soon be in production on kitchin trailers, depth bombs and ordinary bombs. This, with the additional order for $3,500,000 worth of Quad trucks and work on the order for 2000 Signal Corps trucks, will put the company on a 100 per cent war basis in 60 days. Car production is now averaging 25 daily.

—

Bomber Makes 143 M.P.H.

WASHINGTON, Oct. 2—A De Haviland 9 plane equipped with a Liberty engine flew from the McCook Field, Dayton, Ohio, to Bolling Field, Washington, D. C., with no stops in 3 hr. 5 min. The actual flight from Dayton to Washington was 2 hr. 5 min. The distance between the cities is 430 miles with the time of flight 143 m.p.h. The journey was made by Caleb Bragg, civilian pilot, attached to the Engineering Department of the Bureau of Aircraft Production. An engineering officer was the passenger. The pilot traveled by compass at a high altitude and reported no difficulty in holding the course. The plane left for New York this afternoon and will start tomorrow or Friday on a non-stop flight from New York to Dayton.

—

Flight Tests of Caproni Plane

WASHINGTON, Oct. 2—Flight tests of an American built Caproni airplane equipped with three Liberty engines are being held by the Bureau of Aircraft Production. A Caproni plane of this type arrived here to-day at Bolling Field from Hazelhurst Field, Mineola, L. I., and will leave to-morrow in a flight for Dayton. This Caproni is one of a few built in United States Government factories for test by American aviators and engineers. The tests are now being made in flights from various fields and will continue to be made until it is decided whether or not to put this particular type of plane in quantity production.

—

Daily Liberty Output Averages 278

DETROIT, Oct. 3—Special to AUTOMOTIVE INDUSTRIES—The production of Liberty engines in the several plants that are carrying on this work is rapidly increasing and during the month of September the total average daily production reached 278. It is expected that during the month of October the total output will touch 3000 complete engines.

The Ford Motor Co., is the first plant engaged in this work to exceed a production of 100 complete engines in any one day; on Sept. 30, 120 engines were turned out. This number is increasing daily. Several of the plants, namely, Lincoln, Ford and Nordyke & Marmon, exceeded their August estimates.

—

Quantity Liberty Engine Production Reached

WASHINGTON, Oct. 2—The output of Liberty airplane engines is fully up to expectation and has reached quality production. Airplanes are now going ahead rapidly and are being shipped in train load lots daily. These statements were made by W. C. Potter, Acting Director of the Bureau of Aircraft Production, following his return from an inspection of the factories turning out the planes and engines.

Production Situation Clarified

War Board Has Talk with Makers of Cars and Trucks

NEW YORK, Oct. 3—Chairman Charles C. Hanch of the Automotive Products Section of the War Industries Board attended a meeting of the National Automobile Chamber of Commerce here today, and at its close the atmosphere was considerably clarified.

He made a long address before the manufacturers and repeated the statement that every effort should be made to get on a strictly war basis by the end of the year and that the factories may have until Jan. 1 to clean up their inventories. Sentiment among the manufacturers, however, is that they will be permitted to continue this cleaning up after Jan. 1, in case they do not get the job done before and that there is a possibility that the dealers will get some cars during at least the early part of 1919. The production of parts will continue. In cleaning up inventories the ruling of some time ago stands, that production during the last half of this year must not exceed 25 per cent of 1917.

Of the 117 members 74 are now on war work, ranging from 25 to 100 per cent.

Hanch also took up the truck matter. Some time ago it was ruled that makers could produce during the last half of 1918 one-third of the production of the preceding 18 months. Some makers have, however, made this amount during the last 3 months, which would seem to shut them down entirely under the ruling. Hanch stated, however, that such makers would go on at the same ratio as allotted, but that this excess would be deducted from their 1919 allotment.

The traffic committee cited these figures as to carload shipments: August, 1917, 22,000; August, 1918, 13,631; September, 1917, 20,538; September, 1918, 12,000.

The members expressed themselves as in favor of any taxation which is not discriminatory.

One hundred companies were represented by 128 men, one of the largest meetings ever held.

—

Olds Will Make Liberty Engines

LANSING, Oct. 1—The Olds Motor Works will soon start production on its initial order of Liberty engines. The first lot of 2000 kitchen trailers is expected to be delivered during this month. The production of passenger cars is slowly being diminished and the plant will be entirely on war work by Jan. 1.

Automotive Industries

16 De Havilands Daily to France

First Plane Reached France in May—Make 130 M.P.H.—Praise Liberty Engine

WASHINGTON, Oct. 1—From 15 to 18 De Haviland 4 airplanes, equipped with Liberty engines, were arriving daily in France in August, according to Major General William L. Kenly, Chief of the Department of Military Aeronautics, who quoted a captain of the Air Service just returned from the headquarters of the American Expeditionary Forces. The captain, stated General Kenly, reported that the first De Haviland 4 planes with Liberty engines arrived at stations in France as early as May 13, 1918, and since that date have been coming in increasing quantities. The captain said that it had been necessary to make some changes in the first planes received, but that each succeeding shipment showed better care, and when he left France the airplanes were very satisfactory. In his report the captain stated:

Plane Popular With Pilots

The performance of the planes was very good and the plane and motor has become very popular with our pilots. We obtained approximately 130 m.p.h. at ground level with one plane and had without any special preparation obtained an altitude of 10,000 ft. in 10 min. 21 sec., full load, excepting bombs. We were able to loop, dive and otherwise stunt these planes exactly as well as we would any chasse plane.

When I left the post the planes were arriving at the rate of 15 to 18 per day. The cars were unloaded by our steam crane, and fuselages unpacked in one day (platform), wings in another day and assembly was progressive, similar to the method used in automobile construction.

After gun test, engine test, and final assembly, the compasses were tested and corrected for permanent magnetism. The machines were then sent to the flying field and were given test flight. After final approval they were then dispatched to stations for assignment to squadron.

Air-test pilots and ferry pilots were all of the opinion that the plane was excellent. The French ministry thought so well of the Liberty motor that the Under Secretary of State for Aviation, Monsieur Dumesnil, informed me that the French would gladly take every motor we could produce which we could not use ourselves. I was also given the same information by Captain de Haviland, the designer of the de Haviland plane.

Lt.-Col. Warwick Wright, Royal Air Force, stated to me that the method of packing the plane was considered by the British to be so good that it could not be improved upon. Out of 750 cases which I inspected I only discovered one in which the contents were badly damaged.

Implement Makers Get Price Concession

CHICAGO, Oct. 2—Members of the National Implement and Vehicle Association have been given a concession amounting to approximately $5 per ton in the price of iron and steel for manufacturing farm implements. The concession is to apply on shipments made on and after July 15, 1918, and on contracts made for material to be used in the ordinary farm implement season ending June 30, 1919. The concession covers steel bars and bands, cold rolled and cold drawn steel, and the following agricultural steel: Parallel shares and regular mouldboards (soft centers); O. H. solids, slag; special O. H., slag; disks, harrows and cultivators; coulters, 15 x 5/32 in.

—

Doubles Reduction Drive for White 3 and 5-Ton Trucks

CLEVELAND, Oct. 2—The White Co., which for some time has used the double reduction gear principle in the drive of its 1½ and 2-ton trucks, has applied this principle to revised versions of its 3 and 5-ton vehicles, in which it has also made a number of other improvements. In these two heavier models there is now employed a unit power plant which is an evolution of the White block engine; a cast radiator of the vertical tube type with removable head and a new system of brakes. Deliveries will be started as soon as factory production overtakes urgent military demands. The type of double reduction gearing employed is that in which the first reduction is obtained through a bevel gear and drive pinion in the center of the axle and the second reduction through drive pinions at the ends of the floating live shafts meshing with ring gears inside the hub case of the rear wheel.

—

Lewis Vice-President of Pennsylvania

JEANNETTE, PA., Oct. 2—Seneca G. Lewis has been elected vice-president as well as general manager of the Pennsylvania Rubber Co. Major C. M. DuPuy, who is at present in France, retains his title of vice-president, sharing this office with Mr. Lewis.

—

Chalmers Stock Reduced $660,000

NEW YORK, Oct. 2—All the retiring directors of the Chalmers Motor Co. were re-elected at the annual meeting of the company held yesterday in New York. The stockholders approved the plan to reduce the common stock from $7,060,000, consisting of 532,000 shares without par value, to $6,400,000, consisting of 400,000 shares of common. The 132,000 shares which are cancelled are held in the treasury. No change was made in the preferred stock.

Increase Oil Output 2000 Bbl. Daily

By Cementing 50 Wells a Saving of 750,000 Bbl. a Year Will Be Effected

WASHINGTON, Sept. 30—By cementing oil wells in the North Cushing field of Oklahoma, thereby keeping out the detrimental flow of water, production of oil in the 50 wells has been increased 2000 barrels a day.

The experiment was made by the Bureau of Mines, Department of Interior. In addition to saving 2000 barrels daily for war uses, the experiment added $4,500 daily to the operators' gross income, and if the increased oil yield continues for one year, which is a reasonable expectation, the experiment will have added 750,000 barrels of oil to the production and $1,640,000 to the income of the operators.

The cost of cementing the 50 wells was $10,000, which, when compared with the return, means $165 for each dollar invested. The Bureau of Mines plans to introduce this new system of cementing the wells in other fields throughout the country in order to meet a possible oil shortage. Commenting on the report, Secretary of the Interior Lane said:

This is the kind of practical conservation that counts heavily just now. It not only is saving from waste one of the most precious natural resources with which this country is blessed, but is also supplying much needed fuel for the Army and Navy. At the same time it is paying the operators handsomely to increase the flow of their wells.

It happens that the crude oil from Oklahoma contains much gasoline. An increase of 2000 barrels of crude oil a day means 500 barrels of gasoline a day or more than 7,500,000 gal. in a year's time. This saving alone, from this restricted field in Oklahoma, is sufficient to drive every automobile in the United States an average of 20 miles, and there are 5,500,000 automobiles in the country.

The best of it is, this is but the beginning of an enormous saving of crude oil by keeping the water out of the wells. It has taken the bureau 2 years to demonstrate the feasibility of using cement in the Oklahoma wells, but now that such a saving can be effected it is being adopted by all progressive oil men.

I understand that the bureau has already started a campaign in the Healdton field, Okla., and that, while it has not yet received a report of the actual results, it is estimated that the saving in this field amounts to more than 300 barrels of crude oil a day. In Illinois the same plan is being introduced, so that the Bureau of Mines is confident that the total savings to the country will be considerable and will go quite a distance in supplying our urgent war needs.

New Type Kerosene Carbureter

Applied to Any Engine, Gives Same Power as Gasoline Without Smoke or Carbon

NEW YORK, Sept. 28—A kerosene carbureting device which operates on a new principle, and which enables any internal combustion engine designed for gasoline to generate without any change whatever the same power on kerosene as on gasoline, without smoke, carbon deposit or dilution of the crankcase oil has been perfected and is being placed on the market.

The device is the invention of Enoch Rector and is to be manufactured and marketed by the Rector Kerosene Carbureter Co., which is already producing in a limited way and is at present negotiating for the production of the device in large quantities. James F. Allen, of J. F. Allen & Co., 111 Broadway, New York, a firm of bankers, is head of the company. Associated with him are: Vice-president, E. J. Ludington, president of the Chase Bag Co., St. Louis; secretary and treasurer, Stephen N. Bond; George Wilson, manager of the Union Bank of Canada; Archibald R. Watson and other bankers.

The device has been under development for more than a year, and in that time has been extensively tested in the laboratory of Joseph Tracy both for those interested in the company and the United States Government, the latter tests having been made in Tracy's capacity as consulting engineer to the Bureau of Oil Conservation. A long series of road tests have also been made, including the operation of a 5-ton Garford truck for 6 months with the device. The Fifth Avenue Coach Co., which operates the buses on Fifth Avenue, New York, has been experimenting with one of the devices, and during the past 10 days has operated one of its vehicles in regular passenger-carrying work.

According to the tests which were made by Tracy the Rector carbureter gives practically the same mileage on kerosene as can be obtained on gasoline. In laboratory tests the same maximum horsepower is obtainable and the curve shows a considerable increase in horsepower at all speeds below maximum. Analyses of the crankcase oil after both high-speed and low-speed runs show no measurable dilution of the oil. Smoke is completely eliminated, and in the case of the 6 months run of the Garford truck, there was only sufficient carbon deposit to warrant its being wiped off the pistons with a cloth; the valves were in excellent condition.

According to the tests which have been made, the flexibility operating on kerosene is indistinguishable from that obtained with gasoline.

But one size carbureter is required for engines varying in capacity from 15 to 75 horsepower.

In the conduct of the various tests it is worthy of note that heavy vehicles carrying their rated capacities have always been used. No experiments have been carried on with light vehicles, the thought being that if the device would operate properly and efficiently with a heavy vehicle it would work equally as well with a light vehicle where the demands are not so severe.

Although the use of a heavy vehicle might presuppose almost a continuous capacity load on the engine with little variation of speed and few stops, the reverse has been the case. The device in use on a Fifth Avenue bus, for example—it is fitted to a Knight engine—is subjected to wide demands regarding speed variations with frequent stops of varying length. That the carbureter has equalled expectations for this work is evidenced by the fact that the Fifth Avenue Bus Co. is desirous of equipping all its fleet with Rectors. The fuel consumption measured in dollars and cents is about one-third that with gasoline.

Following are extracts from the report made by Joseph Tracy in his capacity as consulting engineer to the Bureau of Oil Conservation. The tests were made on a 10-ton Garford tractor chassis having a four-cylinder 5.1 x 5.5 engine equipped with Bosch magneto. The vehicle with load weighed 15,275 lb.:

On gasoline the "motor stalled at 9.05 a. m. at 42d Street and 10th Avenue; started immediately. Stopped 9.56 a. m. to telephone and started again at 10.06 a. m. Arrived at Yonkers on first trip 10.25 a. m.; arrived at 42d Street at the end of first trip at 11.30 a. m. Turned and resumed run without stopping. Stopped for traffic at 42d Street and Tenth Avenue one-half minute. Arrived in Yonkers on second trip at 12.34 p. m. Stopped at 12.44 for three minutes for drink. Finished second run at 42d Street at 1.43 p. m. Odometer reading at this point 2723.

"Before beginning third trip, one-half gallon of medium Polarine oil was poured into the motor crankcase. Started third trip from 42d Street at 2.15 p. m., odometer reading 2723 miles. Arrived Yonkers 3.18 p. m.; arrived at 42d Street at 4.20 p. m. Started on last trip at 4.23; arrived Yonkers at 5.23 p. m.; finished 6.27 p. m. at 42d Street, odometer reading 2779 miles.

"Summary of results:

"Weather: fine and clear.

"Temperature: average 73 degrees Fahr. Barometer, average 30.16 in.

"Condition of road surface during test: dry and in good repair.

"Total distance traveled: 113 miles.

"Elapsed time: 9 hrs. 23 min. 30 sec.

"Actual running time: 8 hr. 35 min.

"Speed, m.p.h.: 13.1.

"Quantity of gasoline in tank at start: 25.375 gal.

"Taken from tank at finish: 3.375 gal.

"Used in test: 22 gal.

"Miles per gallon: 5.1.

"Ton miles per gallon: 39.19."

Immediately following the tests with gasoline, the same route was covered the same number of times with kerosene using the Rector carbureter. Following are the results:

"Weather: fine and clear.

"Temperature: average, 78 degrees Fahr.; barometer: average, 30.04 in.

"Condition of road surface during test: dry and in good repair.

"Total distance traveled: 113 miles.

"Elapsed time: 11 hr. 12 min.

"Actual running time: 9 hr. 11 min.

"Speed, m.p.h.: 12.3.

"Quantity of kerosene in tank at start: 25.375 gal.

"Quantity of kerosene taken from tank at finish: 4.25 gal.

"Used in test: 21.125 gal.

"Miles per gallon: 5.3.

"Ton miles per gallon: 39.19."

The present development of the carbureter has only gone as far as kerosene. However, it would seem that other fuels might well be used, such, for example, as distillate, certain grades of fuel oil and crudes not having an asphalt base.

New Regulations for Exports

Licenses Regarded Used Within Period of Validity—Supersede All Others

WASHINGTON, Sept. 27—New regulations governing the expiration dates of export licenses have been effected by the War Trade Board. On and after Sept. 30, 1918, export licenses will be regarded as used within the period of their validity:

(A) If the through export bill of lading is issued and signed on or before the expiration date of the license and subsequent to Oct. 9, 1917; or

(B) If the ocean bill of lading is dated on or before the expiration date of the license; or

(C) If the dock receipt is dated on or before the expiration date of the license and the ocean bill of lading covering the same shipment is dated not later than 30 days after the expiration date of the license; or

(D) If the railroad notice of arrival issued at the port of exportation is dated on or before the expiration date of the license, and if the ocean bill of lading covering the same shipment is dated not later than 10 days after the expiration date of the license, provided that the provisions of this paragraph (D) shall apply only when the merchandise is exported on vessels loaded at railroad docks, where dock receipts as provided in paragraph (B) cannot be issued by the vessel or its agents; or

(E) If the shipment is on a lighter which arrives on or before the expiration date of the license, alongside the vessel upon which the shipment is to be loaded, and if the shipment is, in fact, loaded on that vessel and ocean bill of lading is signed not later than 30 days after the expiration date of the license.

The railroad agent issuing a through export bill of lading (combination rail and steamship bill covering goods to destination) will forward to the Bureau of Exports, War Trade Board, Washington, D. C., one copy of such bill of lading after there has been noted thereon the port of exit through which the shipment will pass.

These regulations supersede those announced in W. T. B. R. 152, made public June 29, 1918.

Liberty Planes Are Being Rushed to Europe

First One Reached Battlefront May 18, and Others Have Followed at Rate of Five to Ten a Day Since

WASHINGTON, Oct. 1—The first Liberty engine equipped airplane shipped from this country to France arrived on May 18, 1918, not July 1, as was indicated by earlier reports.

If 10,000 Liberty equipped airplanes had been shipped across when the earlier criticisms of the program were made there would have been no facilities for handling them.

In a recent convoy all of the transports, twelve in number, carried Liberty engines and American made airplanes as a part of their cargoes.

The loss of the first five Liberty airplanes flown from the American lines was due to lack of suitable landing ground and the planes landed by mistake within the German lines.

The Liberty engine is proclaimed the best that is made for flying purposes, and airplanes equipped with it have attained a speed of 135 m.p.h.

This statement and other interesting explanations of the airplane situation in France were made by Senator Thompson before the Senate recently, following the Senator's return from a trip through England and France.

Plane Carries Twenty-one Passengers

He described one of the large Handley-Page bombing planes, type 0-400, as capable of carrying 20 passengers besides the pilot and 2000 lb. of bombs in addition to the machine gun equipment, fore and aft as well as in the center. Following is that part of the Senator's address relating to aircraft:

"I also visited various training and flying schools, both in France and England, including the largest flying school in the world at Issoudun, which has about 5000 enlisted men and about 800 officers and a total student membership of about 2000, all of whom are American young men, including a number of Kansas boys. Here they are given about 6 weeks' final training and taught to use all kinds of planes, including the three different types required for all flying squadrons, namely, the fighting or scouting plane, called in the United States service the pursuit plane; the battle, observation, or reconnoissance plane, and the bombing plane. The fliers are divided into three classes and are permitted to choose service with the character of plane they are best able to handle.

"I also inspected the largest aviation assembling plant in the world at Romorantin. Here is where most of the Liberty motors are being installed in the De Haviland 4 and D Haviland 9 planes, commonly referred to as the D.H.4 and the D.H.9. Some criticism on this side of the Atlantic has been made for the delay in the delivery of this character of planes, the erroneous statement being made on the floor of the Senate as late as last July that there was only one Liberty motor battleplane in Europe. The truth is, delivery of these planes was not expected earlier than July, while, as a matter of fact, the first Liberty motor plane arrived, was set up complete and christened on May 18, 1918, and they have been arriving over there at the rate of five to ten per day ever since.

"Every transport on our way over to France—twelve in number—carried Liberty motors and planes. Complaint was also made because we did not have as many as 10,000 or 20,000 planes over there, when, as a matter of fact, if they had been there they could not have been used, because there was not sufficient hangars or aerodromes to take care of them, or ample flying stations or fields from which to fly and land; and neither was there a sufficient number of flyers or competent men in the aviation service to properly take care of the planes or a sufficient supply of gasoline or lubricating oil.

"The first five Liberty planes had the misfortune to land within the German lines by mistake, so the importance of having suitable grounds on which to land, and to know where to land, can readily be seen.

"It requires about fifty experienced men and three extra planes behind the lines to keep one man flying. While, of course, there was some delay in the development of this wonderful Liberty motor, which is not to be wondered at, but having produced the best motor in existence rather than adopting some inferior motor, it has certainly been worth whatever loss has been caused by the delay and will prove a greater benefit in the long run. The fact is, that the Allies predominate in the air as they do in manpower and in artillery. It is, indeed, gratifying to know, however, that the delay has ended and that planes are now arriving at the distributing points in France about as rapidly as they can be taken care of.

De Haviland Is Good All-Purpose Plane

"I enjoyed a flight over France in one of the completed and thoroughly equipped Liberty D.H.4 planes. This plane is regarded by experts to be the best all-purpose plane in existence, one that can be used fairly successfully for all three purposes required in a flight, to wit, battling, observation, and bombing. They are each modernly equipped, carrying a pilot who is armed with a Marlin machine gun capable of shooting 600 shots per minute, and the propeller in front of him so synchronized with the gun as to permit the pilot to fire right between the blades without hitting them, and also carrying an observer armed with a Lewis machine gun, which has a greater shooting ability, because it has an independent train and can be pointed in any direction.

"The D.H.4 Liberty plane weighs about 3800 lb., equipped with pilot and observer, and carries 500 lb. of bombs, equally divided, hanging from each wing, and so arranged that the operator may drop the bombs in 50-pound packages, or, if he prefers, can drop the whole 500 lb. at one time. Each plane is also equipped with wireless-telegraph outfit, besides other modern devices for navigation and communication.

"It was also my privilege to visit the Handley-Page plant in England, and on Sept. 1 to enjoy a flight over the city of London in one of the large Handley-Page bombing planes, the type commonly known as O-4000, which can carry 20 passengers besides the pilot, and 2000 lb. of bombs besides machine-gun equipment, fore and aft as well as in the center. The wings of this plane measure 100 ft. spread from tip to tip, and the body is 65 ft. in length, and the plane weighs without equipment 3½ tons and can carry in addition almost its own weight, so that it weighs when fully equipped about 6 tons and costs about $30,000. It has two 350-hp. motors, both the Rolls-Royce and Liberty motors being used, placed on each side of the nose of the machine instead of directly in front, with platforms built so that the motor can be cranked or repaired in the air. It carries 300 gal. of gasoline and can travel about 800 miles without landing.

Superairplane to Carry 50 Fighters

"While this may seem like a big story, yet this plant is now turning out another plane twice as large and with more than twice the capacity, carrying 50 passengers, over 2 tons of bombs, and will be able to fly from London to Berlin, bomb that city, and return home without leaving the air. I would not give these facts, except I know they are well known to the enemy by reason of the fact that the very first Handley-Page plane put into commission on trial by the British landed within the German lines by mistake, and Germany immediately began to duplicate it. This, however, was a good thing for Mr. Page, for after a long, hard struggle to get recognition from his own Government for the production of this wonderful machine, as soon as it was adopted by Germany, it was immediately approved by the British, and now they cannot be manufactured fast enough. I had the good fortune to witness several airplane battles at Chateau-Thierry, Verdun, Belgium and along the English front near Amiens.

"I also visited various flying schools in England, principally at Chattis Hill, near Winchester, where I took another airplane flight and flew over to a large flying school at Lecombe Corner, some distance away, and back again. We have 72 different flying schools in England in connection with the English aviators, both American and English flyers being trained and fitted for service, and from which place the flyers are sent to the front in France as they become proficient.

"Special attention is given to the training of all young men for the service they are to perform before they are placed in danger. Every possible precaution is taken to protect them by our Government. There are six rest camps in England where those who disembark on English shores rest up before going to France to enter the training camps there. I learned of at least 14 different kinds of schools in France, as follows: Artillery, airplane and photography, observers, transportation facilities, blacksmithing and repairs, gas schools, machine-gun and automatic rifle, Signal Corps, French mortar, pigeon schools (training the handling of, and caring for, pigeons for messenger service), engineers, camouflage, Army school of the line, and General Staff College."

Stock of Petroleum Decreases

Oil on Hand During First Half of Year 12 Per Cent Less Than During Last Year

WASHINGTON, Sept. 30—In the first half of 1918, 12,397,660 barrels of crude petroleum were marketed, as compared with 12,114,179 barrels marketed in the same period of 1917. The consumption for the first 6 months of 1918 total 12,669,181 barrels as compared with 11,619,674 for the same period in 1917. The stocks at the end of each of the first 6 months of 1918 show a decrease of approximately 12 per cent as compared with the stocks at the end of each similar month in 1917. Herewith are the tables as prepared by the Department of Interior.

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WASHINGTON, Sept. 30—Oil refineries throughout the country have been requested to increase kerosene production to the fullest extent to forestall a possible shortage during the coming winter by M. L. Requa, Director of the Oil Division of the United States Fuel Administration.

Kerosene consumption is increasing, stated Mr. Requa, and unless immediate steps are taken to increase the supply we will face a shortage this winter, more acute than any experienced with other petroleum products. Following is the letter in full, which was sent to all refineries by Mr. Requa:

I am convinced it is absolutely necessary that the kerosene production of the country be materially increased. Statistically, kerosene is in a more unsatisfactory position than gasoline or fuel oil. We have not heretofore felt the acuteness of this situation because of the summer season through which we have just passed. Now, however, we are approaching the season of maximum kerosene consumption and unless steps are taken immediately to provide increased supply we shall undoubtedly this winter face a shortage much more acute than we have as yet experienced in any of the petroleum products.

The statistics now in the hands of your Sub-Committee show clearly the decrease in the percentage output of kerosene by practically all refineries. The situation as a whole shows decrease in barrels produced and a very large increase in domestic consumption which fortunately has been offset by a decrease in exports due to lack of tonnage for overseas movement. This export movement is now increasing, and the winter will soon be upon us. I request, therefore, that you communicate with each refinery, forwarding them a copy of this letter, and urge upon them the absolute necessity of increasing their kerosene production to the fullest extent possible, at least to a percentage amount equal to that of last year.

Gasoline from Gas Gains 111%

Output During 1917 Is 114,391,415 Gallons Ahead of Production in Year 1916

WASHINGTON, Sept. 30—The natural-gas gasoline industry in the United States produced 217,884,104 gals. of gasoline by means of compression, absorption, vacuum pumps and the drip system, a gain of 114,391,415 gals. or 111 per cent over the output in 1916. Of this quantity 77.5 per cent was covered by compression and by vacuum pumps, and the remaining 22.5 per cent by absorption and by salvage from the gas mains. The combined production of gasoline obtained by compression and vacuum pumps was 99 per cent greater than that obtained in 1916, and the production secured by absorption and drips was 110 per cent greater.

Market Value Gains 180 Per Cent

Slightly more than 300,000,000 gals. of commercial gasoline was secured from the total output in 1917. The average price paid in 1917 for the raw production at the sources of production was 18.45 cents per gallon and the market value of the

Production, Consumption and Stocks of Petroleum During First Half of 1917 and 1918

APPALACHIAN FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	1,960,044	1,675,682	4,161,870	1,731,000	1,913,676	3,638,740
February	1,724,571	1,897,055	3,989,386	1,998,300	1,712,810	3,924,230
March	2,116,689	2,072,860	4,033,215	2,177,900	2,110,330	3,991,800
April	1,978,046	1,908,872	4,102,389	2,177,560	2,203,275	3,966,085
May	2,204,088	1,785,721	4,520,756	2,279,700	2,284,235	3,961,550
June	2,130,741	2,279,484	4,372,013	2,033,200	2,444,855	3,549,895
	12,114,179	11,619,674	.....	12,397,660	12,669,181	.....

LIMA-INDIANA FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	315,175	179,398	2,276,64.	168,300	154,611	1,919,930
February	263,462	201,433	2,338,671	227,900	537,380	1,610,450
March	335,111	184,229	2,489,553	290,700	312,360	1,588,790
April	309,745	401,993	2,397,305	294,000	288,860	1,593,930
May	338,029	477,885	2,257,449	314,990	308,080	1,600,840
June	329,662	419,953	2,167,158	281,400	427,470	1,454,770
	1,891,184	1,864,891	.....	1,577,290	2,028,761	.....

ILLINOIS FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	1,433,901	1,550,335	6,281,388	1,004,400	1,300,442	3,264,180
February	1,197,218	1,549,933	5,928,673	1,032,600	965,590	3,331,190
March	1,433,513	1,905,255	5,456,931	1,189,800	1,232,390	3,288,600
April	1,308,431	1,627,553	5,137,809	1,145,100	1,367,600	3,066,100
May	1,424,684	1,705,252	4,857,241	1,205,400	1,247,500	3,024,000
June	1,336,263	1,602,950	4,590,554	1,186,940	1,292,270	2,918,670
	8,134,010	9,941,278	.....	6,764,240	7,405,792	.....

MID-CONTINENT FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	12,305,363	13,055,077	103,506,525	13,401,500	12,297,104	100,571,610
February	11,020,427	10,391,573	104,135,379	12,521,200	12,215,190	97,877,620
March	13,537,322	13,156,224	104,516,477	14,696,600	16,070,000	96,504,220
April	12,819,531	12,132,421	105,203,587	14,181,700	14,352,340	96,333,580
May	13,016,035	13,213,067	105,006,555	14,228,820	14,031,830	96,530,570
June	13,375,807	11,895,586	106,486,776	14,355,640	13,655,940	97,230,270
	76,074,485	73,843,948	.....	83,385,460	85,622,404	.....

GULF FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	1,943,651	1,770,393	9,554,025	1,651,600	1,110,864	8,925,550
February	1,790,040	1,638,164	9,705,901	1,509,800	912,920	9,522,430
March	1,966,869	1,701,040	9,971,730	1,826,000	2,189,900	9,158,530
April	2,131,112	1,854,831	10,248,011	1,744,666	2,213,960	8,689,170
May	2,108,246	2,101,179	10,255,078	2,032,806	2,354,310	8,367,660
June	2,046,908	2,329,534	9,966,452	2,164,120	2,261,460	8,268,320
	11,980,826	11,395,141	.....	10,926,920	11,043,414	.....

ROCKY MOUNTAIN FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	611,898	499,646	903,323	842,700	841,961	516,080
February	664,332	689,243	878,412	769,500	772,620	512,960
March	760,885	871,004	768,293	1,048,400	920,230	641,130
April	799,346	700,342	867,297	955,400	842,970	753,560
May	760,360	782,444	845,213	1,081,100	954,880	879,780
June	753,332	767,820	830,725	1,076,960	1,056,060	900,680
	4,350,153	4,310,499	.....	5,774,060	5,388,721	.....

CALIFORNIA FIELD

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	7,763,281	8,953,195	42,647,328	8,443,500	9,154,450	31,842,780
February	7,035,199	8,234,465	41,448,062	7,693,450	8,185,410	31,350,820
March	7,827,901	8,861,095	40,414,868	8,309,300	8,718,580	30,941,540
April	7,757,775	8,771,735	39,400,908	8,349,500	8,895,790	30,395,250
May	7,764,440	8,933,542	38,231,806	8,529,120	a11,524,410	27,399,960
June	7,463,656	8,929,957	36,765,505	8,486,932	8,165,262	27,721,630
	45,611,252	52,683,989	.....	49,811,802	54,643,902	.....

SUMMARY BY MONTHS

Month	1917 Marketed	1917 Apparently Consumed	1917 Stocks End of Month	1918 Marketed	1918 Apparently Consumed	1918 Stocks End of Month
January	26,333,171	27,684,584	169,331,101	27,244,600	26,774,108	150,678,870
February	23,696,107	24,602,724	168,424,484	25,753,750	28,302,920	148,129,700
March	27,979,149	28,752,566	167,651,067	29,539,700	31,554,790	146,114,610
April	27,104,844	27,398,605	167,357,306	28,848,860	30,165,795	144,797,675
May	27,616,740	28,999,948	165,974,098	29,672,930	a32,706,245	141,764,360
June	27,431,228	28,226,143	165,179,183	29,584,192	29,304,317	142,044,235
	160,161,239	165,664,570	.....	170,643,432	178,808,175	.....

aIncludes about 2,000,000 barrels of refinery products included in stock totals prior to May.
Statistics for the California field in 1918 were furnished by the Standard Oil Co. (California, the Independent Oil Producers Agency, and the Pacific Coast Petroleum War Service Committee
Statistics of crude oil marketed in 1918 include runs of 4,643,000 barrels net from producers field tanks.

entire output was $40,188,956, a gain of 180 per cent in gross market value as compared with 1916.

It is estimated that 429,000,000,000 cu. ft. of natural gas was used to produce the gasoline, and the average recovery of gasoline per 1000 cu. ft. was about one-half gallon. The tables include the essential statistics of the natural-gas gasoline industry in the United States in 1917.

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Urge Gasoline Cards

WASHINGTON, Sept. 27 — Recommendation for a card system to be used for gasoline distribution "during the gasoline shortage" was made in Congress yesterday by Congressman Focht. The recommendation was the result of a letter from a constituent, a farmer, who pointed out what he considered the injustice of the Sunday gasolineless program. The farmer, he said, working in his field on week days, witnessing the cars driving by, able only to use his on Sundays, considers it an injustice to be prohibited from the use of passenger cars on Sunday while others with more leisure might use theirs during the week.

Exports of Petroleum Products for Eight Months of 1918

EXPORTS BY GROUP	August		Eight Months Ended August	
	1918	1917	1918	1917
Mineral oils, gal.	237,979,571	225,487,195	1,828,722,361	1,695,532,542
Mineral oils, value	$32,919,914	$21,307,362	$227,470,466	$154,931,531
EXPORTS BY PRINCIPAL ARTICLES				
Crude mineral oil, gal.	9,553,294	12,192,207	132,549,891	108,504,211
Crude mineral oil, value	$560,642	$308,280	$7,466,943	$4,843,940
Lubricating oil, gal.	27,807,975	23,247,049	175,757,051	179,556,884
Lubricating oil, value	$8,777,919	$4,858,128	$49,632,214	$34,264,732
Gasoline, naphtha, etc., gal.	56,944,192	30,593,418	378,621,070	272,594,982
Gasoline, naphtha, etc., value	$13,677,715	$7,275,604	$93,525,191	$58,733,714
Residuum, fuel oil, etc., gal.	106,564,466	113,518,172	819,830,744	677,623,851
Residuum, fuel oil, etc., value	$5,582,935	$4,948,284	$44,395,445	$24,574,208

U. S. Produces Most Petroleum

WASHINGTON, Sept. 30—Five hundred million six hundred fifty-one thousand eighty-six barrels of petroleum were produced in 1917, according to a statement by the United States Geological Survey, Department of Interior. Of this amount 66.98 per cent was produced by the United States. This is 5 times greater than the amount produced by Russia, which ranks second.

The production for the 40 years extending from 1857 to 1917 total 6,983,567,246 barrels. During this period the United States led in production with an output of 60.89 per cent of the total amount.

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August Oil Exports 9,553,294 Gal.

WASHINGTON, Sept. 26 — Crude mineral oil exports for August were 9,553,294 gals. valued at $560,642, as compared with 12,192,207 gals. valued at $408,280 for August, 1917. Exports of gasoline, naphtha, etc., amounted to 56,944,192 gals. valued at $13,677,715 for August, 1918, as compared with 30,593,418 gals. valued at $7,275,604 for August, 1917, showing an increase of 85 per cent. Herewith is the summary of oil exports.

World's Production of Crude Petroleum in 1917, and Since 1857, by Countries

Country	Production, 1917			Total Production, 1857-1917		
	Barrels of 42 Gallons	Metric Tons	Per Cent of Total	Barrels of 42 Gallons	Metric Tons	Per Cent of Total
United States	a335,315,601	44,708,747	66.98	4,252,644,003	567,019,201	60.89
Russia	b69,000,000	9,418,509	13.78	1,832,583,017	242,336,152	26.24
Mexico	55,292,770	8,264,266	11.04	222,082,472	33,166,241	3.18
Dutch East Indies	c12,928,955	1,778,495	2.58	175,103,267	23,628,200	2.51
India	b8,500,000	1,133,333	1.70	98,583,522	13,144,469	2.41
Galicia	5,965,447	d829,629	1.19	148,459,653	20,646,663	2.13
Japan and Formosa	2,898,654	386,487	.58	36,065,454	4,808,727	.52
Rumania	2,681,870	b373,000	.54	142,992,465	19,283,174	2.05
Peru	2,533,417	337,789	.51	21,878,285	2,917,104	.31
Trinidad	1,599,455	222,456	.32	5,418,885	753,670	.08
Argentina	1,144,737	168,340	.23	3,047,858	436,033	.04
Egypt	1,008,750	134,500	.20	2,768,686	369,158	.04
Germany	995,764	b140,000	.20	15,952,861	2,155,974	2.36
Canada	205,332	27,378	.04	24,112,529	3,215,004	3.50
Italy	50,334	b7,000	.11	947,289	133,919	.01
Other countries	b e530,000	70,667		927,000	123,600	.01
	500,651,086	68,000,596	100.00	6,983,567,246	934,137,289	100.00

a Quantity marketed.
b Estimated.
c Includes British Borneo.
d Estimated in part.
e Includes 19,167 barrels produced in Cuba.

Gasoline From Natural Gas Marketed in the United States in 1917

State	Number of Operators	Plants		Gasoline Produced			Estimated Volume of Gas Treated, M Cu. Ft.	Average Yield of Gasoline per M Cu. Ft. Gas, Gallons
		No.	Daily Capacity, Gallons	Quantity, Gallons	Value	Price per Gallon, Cents		
Okla.	167	234	492,436	115,123,424	21,541,905	18.71	84,719,941	1.359
W. Va.	128	188	135,663	32,668,647	6,511,813	19.93	167,771,351	0.195
Cal.	45	49	99,761	28,817,604	4,438,022	15.40	45,351,247	0.635
Pa.	287	251	59,164	13,826,250	2,778,098	20.01	49,487,056	0.279
Tex.	10	11	32,550	6,920,405	1,149,441	16.61	12,677,216	0.546
Ohio	49	61	25,137	5,439,560	1,051,376	19.33	30,062,141	0.181
La.	15	20	20,118	4,979,754	814,747	16.36	2,143,511	2.323
Ill.	33	55	17,392	4,934,009	866,033	17.55	2,685,895	1.837
Ky.	5	5	13,400	3,818,209	763,186	19.99	24,915,946	0.153
Kan.	4	6	4,642	1,174,980	241,219	20.53	9,315,339	0.126
N. Y. Col.	7	6	2,122	181,262	33,116	18.27	68,154	2.659
	750	886	902,385	217,884,104	40,188,956	18.45	429,197,797	0.508

Gasoline Produced by Compression and by Vacuum Pumps

State	Plants		Gasoline Produced			Gas Used	
	Number	Daily Capacity, Gallons	Quantity, Gallons	Value	Price per Gallon, Cents	Estimated Volume, M Cu. Ft.	Average Yield of Gasoline per M Cu. Ft., Gallons
Oklahoma	207	456,632	108,728,213	20,321,067	18.68	36,399,280	2.987
California	40	82,092	23,478,521	3,637,827	15.49	27,477,443	0.854
West Virginia	159	44,348	12,276,784	2,211,494	18.01	4,845,648	2.534
Pennsylvania	234	32,564	9,011,199	1,792,430	19.89	3,572,356	2.522
Louisiana	18	17,915	4,459,920	719,758	16.14	1,468,346	3.037
Illinois	54	15,392	4,268,158	756,344	17.72	2,020,644	2.113
Texas	9	11,050	3,997,337	674,443	16.87	2,685,316	1.489
Ohio	54	8,337	2,331,498	423,106	18.15	836,639	2.787
New York	5						
Kansas	1	3,322	369,925	70,361	19.02	150,784	2.453
Kentucky	3						
Colorado	1						
	785	671,652	168,921,555	36,606,830	18.12	79,455,856	2.126

Gasoline Produced by Absorption[a]

West Virginia	29	91,315	20,391,863	4,300,319	21.09	162,925,703	0.125
Oklahoma	27	35,804	6,395,211	1,220,838	19.09	48,320,661	0.132
California	9	17,669	5,339,083	800,195	14.99	17,873,804	0.299
Pennsylvania	17	26,600	4,815,051	985,668	20.47	45,914,700	0.105
Kentucky[b]	2	13,000[b]	3,725,893	745,210	20.00	24,871,590	0.150
Ohio	7	16,800	3,108,062	628,270	20.21	29,225,502	0.106
Texas[c]	3	21,650	2,978,068	484,898	16.28	10,010,233	0.298
Kansas	5	3,842	1,071,633	220,550	20.58	9,274,289	0.116
Illinois[c]	1	2,000	665,851	109,689	16.47	665,851	1.000
Louisiana[c]	2	2,203	519,834	94,989	18.27	675,165	0.770
New York[d]	....	.....	7,000	1,400	20.00	2,776	.....
Colorado	....	.....	.....	.....	...	.....	.....
	102	230,883	49,017,549	9,592,026	19.57	349,760,274	0.140
Grand total	886	902,385	217,884,104	40,188,956	18.45	429,197,797	0.508

a Includes drip gasoline.
b Includes gasoline produced in Kentucky from West Virginia gas.
c Includes some gasoline produced by compression.
d Drips only.

Mail Applications for Preference

N.A.C.C. Sending Out Forms for Passenger Car and Truck Makers to File with W.I.B.

NEW YORK, Oct. 1 — The National Automobile Chamber of Commerce is this week sending to passenger car and motor truck manufacturers Application Forms for Places on the Preference List. This is known as "P. L. Form No. 1" and, it is explained, should be filled out and sent at once to the Priorities Division of the War Industries Board, Washington. If the form is approved, the manufacturer is placed on the preference list for fuel, labor, materials and transportation in view of shortages.

In filing the form, makers of trucks are instructed to state that it is in accordance with Circular No. 11 of the War Industries Board and Circular No. 177 of the N. A. C. C., relating to priority for materials for trucks under pledges that such vehicles are to be sold for essential purposes. Passenger car makers, in filing the form should state that it is in accordance with their agreement with the War Industris Board as made plain in that Board's letter to the N. A. C. C. relating to preferential treatment for materials for passenger cars to be produced during the last half of 1918. The forms are reproduced herewith.

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Marine Engine War Service Committee Formed

WASHINGTON, Sept. 28—Members of the Marine internal combustion engine and accessory industry met here yesterday at the direction of the Chamber of Commerce of the United States and elected a War Service Committee to represent the industry as a point of contact with the Government. The names of the committee are not yet made public and will not be until each member elected signifies his acceptance, following which the names will be certified by the Chamber of Commerce and announced.

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Coal Production Drops Slightly

WASHINGTON, Oct. 1—Bituminous coal production for the week ending Sept. 21 was 12,650,000 tons. This is 4 per cent below the production of the week of Sept. 14, but exceeds the production of the corresponding week of 1917 by 19.4 per cent or 2,060,000 tons. The anthracite coal output for the week ending Sept. 21 was 1,847,000 tons, a decrease of 11.5 per cent as compared with the preceeding week and a decrease of 2.1 per cent against the corresponding week of 1917. The loss in anthracite production was due to a strike.

Government Control of Platinum

Licenses Required for Sales, Production, Use and Grading —Supply Far Short

WASHINGTON, Sept. 27 — Regulations have been completed for the licensing of the sale, use, production and trading in platinum, iridium, palladium, sulphuric acid or other mineral products containing these metals. Licenses will also be required for the use of these metals for manufacturing purposes. The regulations limiting the sale, possession and use of these metals have been drawn up by the Bureau of Mines to be enacted by the War Industries Board, in accord with a Congressional act.

It is unlawful under the regulations for any person without a license to purchase, sell or trade in these metals or to possess 1 oz. troy or more of unmanufactured platinum, iridium, palladium or the compounds for more than 90 days. Licenses are required to purchase, sell or trade in these metals, unmanufactured, except that sales can be made without a license to an authorized agent of the United States or to a licensee who has been given permission to make the purchase. Licenses are required also for:

Producing these metals by mining.

P. L. Form No. 1 — No. ..... (For use of Committee.)

APPLICATION

FOR PLACE ON

PREFERENCE LIST

TO THE PRIORITIES BOARD,
OF WAR INDUSTRIES BOARD,
Washington, D. C

The undersigned hereby makes request to be placed on Preference List of industries and plants for the reasons stated below

DEFINITIONS OF TERMS.

1. The term "the Allies" shall be taken to mean the nations associated with the United States in the war in which it is now engaged
2. The term "Government" includes the United States Government and the Allies
3. The term "direct Government orders" signifies any order or contract placed by the War Department or the Navy Department of the United States, or the U. S. Shipping Board Emergency Fleet Corporation, or by the Allies
4. The term "indirect Government orders" signifies materials, supplies, or equipment necessary in the manufacture of or as component parts of direct Government orders
5. "Work of exceptional or national importance" shall be taken to mean work which, while not primarily designed for the prosecution of the war, yet is of great public interest and essential to the national welfare, such as equipment and supplies for railroads and other public utilities; equipment and tools for mining of fuel and ores required in war work; agricultural implements; food containers, repairs to existing industrial machinery; and other work of similar character

NOTE.—If there is insufficient room in spaces provided for answering any of these questions, use separate sheet(s) numbered to correspond with questions; or blank pages two and four may be used.

1	Insert here name and address of applicant.	Name General office address
2	Location of particular plant for which preference is requested. Separate applications for each plant	City or town Served by what railroads
3	Nature of product or products. If more than one, approximate per cent of each to total production.	
4	Principal uses which are made of your products, approximate per cent for each use.	
5	List here the numbers, ratings, and subject matter of Priority Certificates upon which you are working. (Omit certificates relating to orders which you have filed.)	

Answers to Questions 6, 7, and 8 should represent only the percentage of output which is being applied to unfilled orders. Such percentages in connection with the answer to No. 9 should make 100%

Classification of orders on hand.	Per cent.	Description, War Order numbers, etc.	Estimated time necessary to complete.
6 What per cent of applicant's plant output is now devoted to direct Government orders?			
7 What per cent of applicant's plant output is now devoted to indirect Government orders?			
8 What per cent of work is "of exceptional or national importance" as above defined?		State why work is of exceptional or national importance	
9 All other work (percentage).			
Total.	100%		

10 Close approximate monthly requirements of fuel for all purposes.
(a) Coal (tons).
(b) Coke (tons).
(c) Fuel oil (gallons).
(d) Gas (cu. ft.).

11 Number of employees:
(a) Men .....
(b) Women.....

12 Fuel on hand .....

13 Further information conceived to be of importance in the consideration of this application.

The undersigned, being first duly sworn, on oath says that the statements contained in the foregoing application are full, true, and correct.

Subscribed and sworn to before me this ..... day of ..... 1918.

..... Notary Public
in and for .....

..... (Name of corporation, firm, or individual.)
By .....
(Name of officer legally empowered to act for applicant.)

Forms which manufacturers of passenger cars and commercial vehicles must fill out and file with the War Industries Board to have themselves placed on the Preference List for fuel, materials and transportation

Producing sulphuric acid or other chemical products where platinum, iridium or palladium is used in the production.

Importing or exporting these metals.

Producing platinum, iridium or palladium either as a primary product or as a by-product by smelting or refining.

Manufacturing electrical appliances or parts containing these metals.

Manufacturing scientific instruments containing them.

Manufacturing or producing any article or product not mentioned above, including chemical, dental, surgical or jewelry supplies containing these metals, where such business requires more than 1 oz. troy per month of platinum, iridium or palladium.

Platinum compounds are used for contact points in ignition systems for airplanes, trucks and all kinds of automotive apparatus as well as in telegraph and telephone instruments.

Present Demand and Supply

Representatives of the War Industries Board have set forth the sudden and great increases that the government authorities had found it necessary to make in connection with platinum, etc., requirements. In fact, the government's estimate of requirements was only 40,000 ounces in March and 69,000 in June. Their statement of stocks on hand, while large, is not reassuring should the war continue for years, and the Russian platinum mining be long suspended by internal revolution.

For the year 1913 the world's production of crude platinum has been given at about 313,000 ounces troy, while for 1917 only 83,000 ounces; thus at present there is obtained from all the mines only 26½ per cent of the pre-war output. In 1913 Russia was credited with 95 per cent of the total and in 1917 only 60 per cent.

Platinum Discovered in 1735

Iridium is associated with platinum and the supply of this metal is for the most part obtained from the platinum deposits of Russia. Platinum was discovered on Colombia, South America, in 1735. In 1810 it commanded only from 30 to 40 cents an ounce. It was found in Russia in 1819. In 1828 it had a value of about $7 an ounce. The fluctuation in values of platinum and iridium from 1901 to 1914 is most noticeable, the price per troy ounce of platinum varying from $14 to $36. Since 1914 platinum and all allied metals have varied in price as follows: For 1914, platinum $45, iridium $65, and palladium $44; 1915, platinum $55, iridium $83, and palladium $67; 1917 platinum $103, iridium $150, and palladium $110; 1918, platinum $105, iridium $175, and palladium $135, the Government fixed prices.

Next to Russia, Colombia produces the largest amount of platinum and presents the most promise of larger future outputs under stimulus of higher prices. Platinum in this country is found in many places but in small quantity, being less than 1 per cent of the world's production, but with the present high price its discovery and production in this country may be somewhat increased.

14 Solid Tire Sizes Now Standard

War Board Reduces List from Over 100—Mostly Affects 1 to 2-Ton Trucks

WASHINGTON, Sept. 30 — Sizes of solid tires will be reduced from a range of more than 100 types and sizes to 14 types and sizes within the next 2 years. An immediate reduction to 40 sizes has been ordered and this will be lowered to 36 on Nov. 1. Following that date there will be a gradual elimination of other types and sizes at specific periods until the minimum number is attained. The use of caustic soda in tire manufacture is to be discontinued at once.

The effect of the reduction within the next two years of solid tire sizes from more than one hundred to fourteen will not by any means be serious. Approximately one-third the total number of truck manufacturers will be affected, but only in so far as their smaller models are concerned.

Analysis of the sizes to be eliminated and those to be continued reveals that 114 separate models of trucks produced by various manufacturers will be affected. Of these models 28 are 1-ton, 36 are 1½-ton and 27 are 2-ton, which is a total of 91, leaving only 23 other models of capacities varying from ¾ to 6 tons which are affected. Practically all manufacturers producing vehicles larger than 2 tons already have adopted tire sizes which fit in with the standardized sizes to be adopted.

These plans are the result of a series of conferences between representatives of the industry and the War Industries Board, held to standardize the sizes and types of solid tires, to reduce the amount of labor, material and capital used. Following is the standardized program:

Class A, which is the range of standardized sizes and types which will be continued, includes hard base pressed-on and all removable types of tires of the following sizes:

32x3	36x4	40x5
32x3½	36x5	40x6
32x4	36x6	40x10
	36x7	40x12
	36x7	40x12
	36x8	40x14
	36x10	

Class B, which is the range which will be discontinued no later than Nov. 1, 1920, includes hard base pressed-on and all removable types of tires of the following sizes:

30x3½	34x3	36x3½	40x7
	34x3½		
	34x4		
	34x5		38x5

Class C, which is the range to be discontinued in manufacture no later than Nov. 1, 1919, includes hard base pressed-on and all removable types of tires:

32x3½	34x6	36x3	38x4
			38x5
			38x6
			38x6

Class D, the range which will be discontinued on Nov. 1, 1918, includes hard base pressed-on and all removable types of tires:

	42x5	
	42x6	
34x3½		38x4½

Class E, which will be discontinued at once, includes all types and sizes of solid tires not specified in the above classes.

—

Continue Tire Production at 50 Per Cent

NEW YORK, Oct. 1—Production of pneumatic tires during October, November and December is to be continued at the same rate as during August and September, namely 50 per cent of normal production. During this period tire manufacturers will be allotted only one-third of their normal quantity of rubber. This means that they must use up all surplus stocks. Those who are close to the situation state that such surplus stocks are ample to permit this fifty per cent production of tires. The War Industries Board, which has made these rulings, hereafter will consider the rubber industry as a controlled industry. Restriction of pneumatic tire production applies only to casings and tubes smaller than 6 in. section. There will be no restriction of 6 in. or larger tires. No restriction will at present be placed on the production of solid tires.

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G. M. C. Buys Jim Dandy Cultivator

CHICAGO, Sept. 30—The General Motors Corp. has purchased the Jim Dandy Motor Cultivator, hitherto made by the S. K. & S. Co., El Paso, Ill., and manufacturing facilities will be moved to Janesville, Wis. For the coming season it is probable the production will be from the factory of the Janesville Machine Co., but will be made a part of the production of the G. M. C. tractor factory at Janesville, as soon as the latter is completed. The Jim Dandy motor cultivator is of distinct type since it is belt driven. In one row model it can be driven with reins and is easier managed and handled than is a team of horses. The 2-row model is constructed so that the cultivator beams may be dropped and a draw bar substituted for the hauling of any of the lighter utensils on the farm.

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No Children on War Work

WASHINGTON, Sept. 30—Children under 14 years of age cannot be employed on war work. Children between 14 and 16 years of age cannot be employed more than 8 hours a day nor before 6 a. m. or after 7 p. m., and no more than 6 days per week on war work. These regulations were announced to-day by the War Labor Policies Board. The board states further that the prohibition of employment of children below certain ages does not imply that their employment above these ages is favored. It merely states these regulations because of the great demands that children be included in the industrial mobilization for war. It points out that children of 14 or 16 years of age recruited for war work are certain to lose value as trained workers in their later life.

Marines Have U. S. Made Outfit

First Aviation Unit to Go Overseas with American Built Equipment

WASHINGTON, Sept. 28—The first aviation unit organized in this country and sent abroad using American-made material was the First Marine Aeronautic company, equipped for water flying only, which is stationed abroad at a naval base. This information is made public in an announcement of the Marine Corps Aviation.

In addition to maintaining a flying field at Miami, Florida, where actual flying training is given, the aviation Section of the Marine Corps gives candidates instruction in ground work at the Massachusetts Institute of Technology, Boston, and has two schools for instruction in aviation mechanics.

The flying course at Miami covers 75 days, and includes preliminary, acrobatic and formation flying combined with instruction in bombing, gunnery and reconnaissance. There are now 289 students at the Massachusetts Institute of Technology. When marines are assigned to this school they are enrolled as Gunnery Sergeants for the duration of the course and receive the pay allotted to this rank.

Chance For Promotion

Those who show themselves as promising material are made officers after completing their training as flyers. The ground course lasts 10 weeks and 80 men are graduated each month. One hundred men kept in reserve at all times insures against a break in supply of men to the school. If a man fails to be graduated he has the option of being transferred to training for regular duty in the Marine Corps or being discharged.

Of the two schools for mechanics, the larger is maintained at the Naval School for Mechanics, Marine Corps Section, Great Lakes Training Station, Chicago, Ill. Here Marines are trained as mechanics, riggers and armorers. At present there are 120 enlisted men taking the course at Great Lakes, and 60 men are sent each month from the Marine Corps. The total number of men allotted to the Marine Corps at one time is 360.

The second school for aviation mechanics is located at the Naval School, Marine Corps Section, San Diego, California. The training is the same as given at the Great Lakes School. Ninety-three enlisted Marines are taking the course at the present time. The capacity is 120.

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Hanch Increases Production for Two

WASHINGTON, Oct. 1—Some idea of the relief some truck manufacturers may expect from the action of the War Industries Board restricting production during the last half of this year to one-third of the number of vehicles produced during the last 18 months is given by decisions of Charles C. Hanch, chief of the Automotive Products Section, early this week. It is understood that two manufacturers already have had their apportionments increased, both by practically 50 per cent. Hanch is given latitude by the War Industries Board to increase or decrease apportions. It is understood that he will decide individual cases and that a number of truck manufacturers at present have appeals pending.

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The Pfalz Single-Seater Fighter

(*Continued from page* 593)

the illustrations. As in all German machines, ailerons are fitted to the top plane only, and their crank levers are horizontal, working in slots in the plane. The aileron hinges on a false spar. The crank levers are built up of two halves of sheet steel, pressed to form in section one-half of an ellipse. The two halves are then welded together along the edges. The control cables are secured to the crank lever by the same ball-and-socket attachment as that employed for the rudder and elevator controls already described. The cables pass from the lever, around pulleys in the bottom wing, and through tubes to the controls. These tubes appear to be made of some sort of paper or cardboard, although whether made by wrapping the paper spirally or rolled up straight to form a tube we have not been able to ascertain.

Reference has already been made to the fact that the radiator of the Pfalz is mounted in the top plane. The cooling may be varied by an adjustable shutter which has a handle projecting back so as to be within the reach of the pilot. The rod carrying the handle has a series of notches cut in it so as to form suitable stops for the shutter in any desired position. The details of the locking device are included in the sketch of this part.

The armament of the Pfalz consists of two synchronized machine guns of the Spandau type. Two transverse tubes form the supports for the gun mounting, which appears very light, being made of light gage steel suitably reinforced by webs in places. The rear attachment of the gun provides for vertical adjustment, while the front attachment enables a slight lateral alignment of the gun after the mounting has been bolted into place on the cross tubes. A peculiarity of the gun placing on this particular Pfalz is that the guns are entirely inclosed under the top covering of the body, with only the muzzle projecting. On a later specimen of the Pfalz fighter the more usual placing of the guns above the body has been employed, whether because inclosing the guns was found unsatisfactory or not we are not in a position to say. Probably the inclosed guns were found to have a tendency to overheat.

In the Pfalz under review no attempt appears to have been made to camouflage the machine, which is painted with aluminum paint all over its body and wings. The rudder tail plane and elevator are painted a dark yellow.

Egypt Fair Market After War

Few Cars Entering Now—Introduction of Trucks and Tractors Needs Education

CAIRO, EGYPT, June 30—Very few automobiles are now being imported into Egypt for private use owing to war conditions and the difficulty of shipping facilities from American ports. This applies to cars for use by civilians. The British army uses a very large number of cars of all types, all of which are purchased through the war office in London.

There should be a fair demand for automobiles in Egypt after the close of the war. The possible buyers are found in the European population resident here and also among the wealthier Egyptian natives. Automobiles in Egypt largely are used in the three centers—Cairo, Alexandria and Port Said. There are a few in the smaller Egyptian cities, but the roads throughout Egypt are not yet sufficient in number or of such character as to encourage automobiling generally throughout the country. Roads are improving each year.

Egypt should be a good market for gasoline farm tractors, and after the war those American firms having energetic Egyptian representation will undoubtedly meet with success and sell a fair number of these tractors.

Motor trucks are not largely used in Egypt, although a few of the larger stores in Cairo have motor delivery wagons. The heavy truck or camion is practically unknown except for army uses.

The reasons for the few trucks in use is partly found in the fact that Egypt has not sold many horses because of the war demand, although a large number of camions and donkeys have been purchased by the British army for the Palestine campaign.

This has not affected the question of local transportation to the point where business houses will look to motor trucks or even to farm tractors to make up for the loss in animal power because of the war. Both agriculture and transportation have been carried on in a crude way in Egypt and it is going to call for an educational campaign before these conditions will change.

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Ohio Labor Shortage Acute

TOLEDO, Sept. 20—According to reports from twenty-one local United States employment offices throughout Ohio the state's labor shortage continues to be acute. The records show that approximately 10,000 jobs were filled during the week ended Sept. 14. There were 17,074 rquests for help. Applicants totaled 14,352. Out of the 4182 requests for female help 2488 took positions. There were 227 applications for farm work and 132 took jobs. Requests for farm work numbered 229.

Production Uncertainty Bothers Truck Makers

NEW YORK, Oct. 3—It is expected that as a result of the meeting of the Motor Truck Committee of the National Automobile Chamber of Commerce which is to be held this afternoon, the situation with regard to production will be materially clarified. Manufacturers are at odds and end following the recent ruling of the War Industries Board curtailing production during the last half of the year to one-third of the output during the past 18 months and this is one question which is to be threshed out.

At the time the Highways Transport Committee was getting into its stride, no hint of curtailment had appeared and it was with the probability of full production that this committees plans were developed. Now, however, that a curtailment appears imminent, it may be that considerable revision of such plans will be necessary. It is understood, in fact, that certain plans now under consideration are entirely held up and will not be acted upon util some assurance regarding future production is forthcoming.

That there may be some relief is apparent from the action of Charles C. Hanch, chairman of the Automotive Products Division of the War Industries Board, who already has been instrumental in having the allotments of two manufacturers increased by practically 50 per cent.

The directors of the N. A. C. C. held their regular monthly meeting yesterday. This is to be followed to-day by the regular meeting of members, after which will come the meeting of the truck committee. At the director's meeting, the concensus of opinion was that members of the association will not oppose any taxation which in the opinion of goverment is necessary.

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Detroit Subscribes 25 Per Cent Quota

DETROIT, Oct. 2—Over 25 per cent of Detroit's $74,000,000 quota was subscribed by the fourth day of the campaign. The total now stands over $19,000,000. The fourth day brought nearly $5,000,000. Among the subscribers were the following:

Packard	$1,000,000
Hudson	700,000
Fisher Body Co.	500,000
Cadillac Motor Car Co.	450,000
Maxwell-Chalmers	300,000
Studebaker Corp.	250,000
Detroit Copper & Brass	250,000
Timken-Detroit Axle Co.	225,000
Continental Motors Corp.	200,000
Hudson (employes)	178,000
Detroit Iron & Steel Co.	100,000
Mich. Smelting & Refining	100,000
Paige	100,000
Detroit Lubricator	119,600
Michigan Steel Castings	111,000
Morgan & Wright	100,000
Michigan Lubricator (employes)	52,000
Michigan Malleable Iron (employes)	50,000
	50,000
Northway Motor	50,000
Buhl Stamping	50,000
Jeffery-DeWitt Co.	40,000
Michigan Lubricator	27,000
Anderson Electric Car Co.	25,000
Buhl Malleable Co.	25,000
Sherwood Brass (employes)	25,400
Total	$5,078,000

Toledo corporations and individual members subscribed a total of $3,635,000 the first day of the loan or nearly one-fifth of the entire quota of the city and county.

Another view of one of the British Whippet tanks which are doing such effective work on the Western front. These are being operated in conjunction with the cavalry and have been quite successful in the Allied drive at Picardy. The civilian in the picture is the Prime Minister of Newfoundland

Willys-Overland	$1,500,000
Auto-Lite Electric Co.	300,000
Champion Spark Plug Co.	$150,000

Flint's factory men have already oversubscribed their quota of $1,111,725, having pledged $1,254,270 or an oversubscription of $150,000 of the total subscription to date. The Buick shops which head the list show nearly half of the subscriptions with a total of over $664,000.

Chevrolet Motor Co.	$238,300
Champion Ignition Co.	109,100
Dort Motor Co.	52,000
Flint Varnish & Color Works	25,000
Imperial Wheel Co.	10,200
Marvel Carbureter Co.	16,900
Walker Weiss Axle Co.	17,300
Weston Mott Co.	146,000
Grand Rapids Brass Co.	25,000
Haskelite Co.	20,000
Hayes Ionia Co.	50,000
Keeler Brass Co.	75,000
National Brass Co.	10,000

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Regulations Governing Tractor Production

WASHINGTON, Oct. 3—Under government control curtailing the use of steel and iron in the manufacture of farm tractors and farm equipment which was announced in AUTOMOTIVE INDUSTRIES last week, regulations issued to-day provide that tractor manufacturers who produced and sold 50 or more tractors Oct. 1, 1917 to Sept. 30, 1918, may not exceed 75 per cent of their consumption of iron and steel during that period in the year October, 1918, to Sept. 30, 1919. Tractor makers who produced and had in field operation 10 tractors and not more than 50 tractors during the last year, will not be allowed to produce over 50 tractors during the coming 12 months. Tractor manufacturers who produced less than 10 tractors in the last 12 months cannot produce more than 10 tractors during the year Oct. 1, 1918 to Sept. 30, 1918. Manufacturers of other farm equipment or machinery similar to farm tractors will also have to follow these regulations.

Signed pledges will be demanded from manufacturers by the War Industries Board to use materials on hand or that come into their possession, solely for the manufacture of tractors, farm equipment and parts, to reduce the tonnage of iron and steel as provided by the regulations, to produce only the most essential farm equipment and parts and to distribute the products only for essential users which comply with the curtailment regulations of the War Industries Board providing for economies and substitution.

The tractor and farm equipment industries consumed 2,000,000 tons of iron and steel in the last year and it is expected that 500,000 tons will be saved for the direct war program by the curtailment.

Judge Parker, Priorities Commissioner, in a statement issued with the regulation acknowledged "that the farm tractor and farm implement industry is not only an essential but an actual indirect war industry." He pointed out the urgent need for steel and iron for direct war needs at this time, however, and makes this the reason for the curtailment.

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Wilson Made Curtiss Vice-President

BUFFALO, Oct. 2—At the monthly meeting of the board of directors of the Curtiss Aeroplane & Motor Corp. Charles Wilson was elected a director and vice-president in charge of production. Mr. Wilson is president and general manager of the Wilson Foundry & Machine Co., Pontiac.

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Ford's Eagle I In Test Runs

DETROIT, Oct. 1—Henry Ford's first sub-chaser—Eagle I—which was launched July 11, has been fitted up and is now making runs up and down the Detroit River in tests. Since the date of the launching of this boat six other Eagles have been put into the water. There are always twenty-one Eagles in the course of construction.

Many Detroit Plants Enlarge

Great Increase in War Work Necessitates Expansion — Building Permits Increase

DETROIT, Sept. 30—Due to the steady increase in the volume of war work in Detroit and surrounding territory many automobile and allied concerns find it necessary to erect new buildings and additions to increase their facilities for supplying the growing war requirements. An unusually large number of building permits for factory buildings and additions have been issued during the past few weeks.

The Packard Motor Car Co. is planning a one-story oil reclaiming station to be erected at the plant on East Grand Boulevard and the Michigan Central Railroad.

Dodge Brothers are contemplating a $300,000 addition to the new building which was recently erected on Lynch Road to accommodate war work.

The Hudson Motor Car Co. has plans on foot for an additional plant building, 60 x 450, to cost in the neighborhood of $60,000. It is reported that the building will be used for shell manufacture.

The Paige-Detroit Motor Car Co. will erect a one-story generator house building at the plant located on McKinstry Avenue.

The Swedish Crucible Steel Co. is building a one-story addition to its factory at Butler Avenue and the Grand Trunk Railroad.

The Parish Mfg. Co., manufacturer of automobile frames, will erect a two-story addition to its factory on Mt. Elliott Avenue, between Harper and Milwaukee Avenues.

The Detroit Copper & Brass Rolling Mills, which is practically on 100 per cent war work, has under construction the erection of a $400,000 addition to its factory at 1223-9 West Jefferson Avenue.

The Detroit Auto Piston Co. will erect a one and a half story factory addition, 60 by 104.

J. E. Bolles Iron Works is planning a one-story building to be erected at the plant located at Milwaukee Avenue and Grand Trunk Railroad.

The Continental Motors Corp. is making plans for a large power house to be erected at the Muskegon plant.

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Ball Bearings on Preferred List

WASHINGTON, Sept. 30—The manufacture of ball bearings and steel balls has been recognized as an essential industry by the War Industries Board. Any member of the industry whose plant is now or in the future shall be exclusively devoted to manufacturing products being or to be absorbed directly or entirely by the Government or in other uses of essential importance, may have his plant given a Class B-3 rating for steel and iron requirements. This rating is given upon the condition that the usual pledge of co-operation be signed and that the rules of the Priorities Division be followed. Manufacturers whose entire output does not go for Government use may file applications for places on the preference list and will be given preference according to the extent of their direct or indirect Government business.

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Caproni Climbs 13,500 Ft. in 46 Min.

NEW YORK, Oct. 1—In recent tests the Caproni bombing plane, fitted with three Liberty engines and carrying a load of 4650 lb., averaged 105 m.p.h. With this load it was able to climb to 6500 ft. in 16 min. It reached 10,000 ft. in 27 min. and 13,500 ft. in 46 min. The gasoline consumption approximated 30 gal. per engine per hour.

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Open Bids for 25,000 B Trucks

WASHINGTON, Oct. 1—Bids for 25,000 Class B 3-ton war trucks have been received by the Motors Division of the U. S. Army, and opened to-day.

Latin America a Good Market

Enormous Opportunities Offered Manufacturers of Automotive Products

NEW YORK, Sept. 30—A glance at the export statistics given in tabular form on this page is sufficient to indicate the enormous extent to which our trade in automotive products with Latin America increased during 1917 when compared with the figures for the previous year.

As compared with 1916, our 1917 passenger car exports increased 52 per cent in number and 76 per cent in value.

Our commercial car exports increased no less than 232 per cent in number and 210 per cent in value.

The value of parts exported increased 232 per cent, tires increased 107 per cent and the only decrease shown is that of gasoline, which is a fraction less than 5 per cent below 1916.

106 Per Cent Increase in Year

Considering the subject from another angle:

During the fiscal year ending June 30, 1916, the total value of cars, trucks, parts and tires exported to Latin-America by the United States was $9,587,275. In 1917 the total had risen to $19,796,917—an increase of over 106 per cent.

Total figures for the year ending June, 1918, are not yet available, but the exports of cars, trucks and parts to Latin-America from the Port of New York alone during the first seven months of the present year are valued at $7,545,572, a record which is doubly remarkable when the serious shortage of shipping is taken into consideration. As a matter of fact, this seven months' record of shipments from New York is almost as great as the twelve months' totals on these items for 1916.

Exports of Passenger Cars, Commercial Cars, Parts, Tires and Gasoline from the United States to Latin American Countries for the Fiscal Years Ending June 30, 1916-1917

	Passenger Cars				Commercial Cars				Parts, Value		Tires, Value		Gasoline, Gal.	
	1916 No.	1916 Value	1917 No.	1917 Value	1916 No.	1916 Value	1917 No.	1917 Value	1916	1917	1916	1917	1916	1917
Argentina	4,399	$2,065,439	3,924	$2,336,001	45	$33,063	141	$146,255	$222,637	$1,458,111	$488,329	$1,301,344	6,621,419	4,091,067
Bolivia	26	16,208	141	100,151	.....	.....	20	48,590	3,453	11,684	4,954	9,187	11,340	18,443
Brazil	272	157,968	873	523,383	11	19,635	14	8,300	59,935	134,326	295,479	696,876	6,034,603	6,062,944
Chile	826	530,211	2,587	1,821,842	17	46,566	69	160,696	72,939	248,043	58,809	264,603	365,778	389,420
Colombia	91	58,325	173	118,937	4	1,236	2	4,998	18,967	27,777	28,617	39,298	278,825	280,805
Costa Rica	60	28,325	37	23,125	.....	.....	.....	.....	10,162	8,398	6,088	11,918	143,390	154,007
Cuba	3,698	2,091,295	3,529	2,545,071	117	171,647	397	722,519	411,731	906,710	547,410	1,019,915	629,340	2,178,213
Dom. Republic	131	60,127	191	96,173	4	5,173	22	23,640	12,389	35,301	18,223	37,441	259,896	412,427
Ecuador	62	44,396	137	106,478	2	3,378	1	2,050	8,014	12,648	9,225	13,645	.....	.....
Guatemala	24	23,552	35	36,174	2	4,916	4	4,323	2,367	9,852	8,852	26,473	79,040	81,848
Haiti	10	3,788	29	13,780	.....	.....	.....	.....	3,285	5,286	988	2,287	5,757	15,107
Honduras	34	22,652	42	24,564	6	14,540	4	4,094	15,649	12,639	7,932	19,657	301,221	251,287
Mexico	383	309,200	2,807	1,642,011	51	100,500	218	198,151	42,258	125,823	236,811	257,413	955,755	614,793
Nicaragua	.....	6,275	.....	3,084	.....	.....	.....	.....	.....	.....	157	294	353,234	423,976
Panama	228	170,964	356	216,711	32	55,171	75	97,970	34,180	56,657	73,854	74,047	1,136,231	1,285,442
Paraguay	6	2,256	40	20,192	.....	1,394	.....	4,172	.....	.....	.....	.....	.....	.....
Peru	59	40,388	400	295,558	5	5,830	25	48,776	5,458	27,332	9,663	27,934	.....	.....
Salvador	68	54,598	75	62,314	.....	.....	.....	.....	3,717	11,314	11,673	22,530	76,893	99,103
Uruguay	285	150,540	1,165	612,838	2	5,818	4	10,437	27,086	125,913	76,608	100,427	556,569	293,400
Venezuela	518	314,156	542	327,507	6	13,029	14	28,502	40,783	87,768	71,849	128,966	557,057	915,067
	11,180	$6,150,836	17,083	$10,925,894	304	$486,896	1010	$1,513,473	$995,010	$3,305,582	$1,955,521	$4,051,255	18,366,348	17,567,349

Men of the Industry

Changes in Personnel and Position

Ranken Heads Purchasing Agents

DETROIT, Sept. 28—The 1919 convention of the National Association of Purchasing Agents will be held in Philadelphia. Officers elected for the ensuing year are: President, D. D. Ranken, E. I. Du Pont De Nemours Powder Co., Wilmington; first vice-president, F. J. Solon, Owens Battle Machine Co., Toledo; second vice-president, J. A. Whaling, Solvay Process Co., Solvay, N. Y.; third vice-president, V. W. Bergenthal, Wagner Electric Mfg. Co., St. Louis; secretary, L. F. Boffey, New York; treasurer, John C. Dinsmore, University of Chicago. A membership drive is contemplated and a suggestion was offered that the organization apply for membership to the American Society for Testing Materials. Thirty-five members of the Michigan Institutional Buyers' Association have affiliated themselves with the Purchasing Agents.

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John C. Toomey has been appointed district manager of L. A. Young Industries, Inc., Detroit.

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L. A. Smith, assistant to T. J. Toner, director of sales and advertising of the Maxwell Motor Co., Inc., Detroit, has been placed in charge of Maxwell and Chalmers sales in the eastern territory, with headquarters in New York.

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Charles B. Wilson, former general manager of the Wilson Foundry & Machine Co., Pontiac, has been appointed a director, with the rank of vice-president, of the Curtiss Aeroplane & Motors Corp., Buffalo. For the last 3 months he has been assistant in charge of production at the Curtiss plant.

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E. L. Kreamer, formerly of the sales and advertising department of the Oakland Motor Co., Pontiac, has enlisted in the Motor Transport Division, and is now stationed at Washington, D. C.

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E. D. Williams, formerly employment supervisor of the motor plant of the Oakland Motor Car Co., has associated himself with the Cleveland Tractor Co.

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B. B. Holt, purchasing agent of the Harroun Motors Corp., Wayne, Mich., has tendered his resignation, effective Oct. 1, to become sales manager for the manufacturers' division of the Bradfield company. This division of the Bradfield company is at present furnishing material on war contracts in Michigan, Indiana and Ohio.

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Jay E. Chilson has been appointed representative for Chicago for the L. H. Gilmer Co., Philadelphia.

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H. F. Harris has been appointed general sales manager of the Republic Motor Truck Co., Alma, Mich.

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Z. D. Barnes, non-ferrous metallurgist with the Westinghouse Air Brake Co. for the past few years, has joined the operating department of the Aluminum Castings Co., and will make his headquarters in Cleveland.

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Paige Nearing 100 Per Cent War Basis

DETROIT, Sept. 28—The Paige-Detroit company is fast approaching the 100 per cent war basis. In a few weeks all the resources of the company will be devoted exclusively to Government service. When the company has used its present supply of materials it will make no more passenger cars.

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Government Rents Ford Buildings

WASHINGTON, Sept. 30—Seven buildings used by the Ford Motor Co. for distributing, assembling and service stations have been taken over by the Government. The buildings are located in St. Louis, Atlanta, Long Island City, Cambridge, Louisville, San Francisco and Philadelphia. The St. Louis building, which has 215,000 sq. ft. of floor space, will rent to the Government at 31½ cents per square foot, and will be used by the Depot Quartermaster. The Atlanta building, totaling 161,000 sq. ft., at a rental of 26 cents per square foot, will be used by the Reclamation Department of the Quartermaster Corps. The Long Island City building, 477,000 sq. ft., rental 31 cents per square foot, will be used by the Gas Defense Service. The Depot Quartermaster is using the Cambridge building, which has 160,000 sq. ft., at 32 cents per square foot. The Louisville plant of 83,000 sq. ft. is being used as a Medical Supply Depot at 24 cents per square foot. The Division of Military Aeronautics will take over the San Francisco building of 38,000 sq. ft. at 24 cents per square foot. The Ordnance Department and the Depot Quartermaster divide the Philadelphia Ford building for the monthly rental of $1,420 per floor.

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Dort Prices Advance

DETROIT, Oct. 1—The Dort Motor Car Co. has increased the prices of its models as follows:

	New Price	Old Price
Touring and roadster...	$985	$925
Coupe and sedan.....	1415	1325
Sedanet	1150	1060

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May Stop Gasless Sundays

WASHINGTON, Sept. 28—Gasoline-less Sundays will continue indefinitely, but the ban may be lifted at any time, according to statements made yesterday by Dr. H. A. Garfield, United States Fuel Administrator.

West Heads Wheel Makers

CLEVELAND, Sept. 30—The next meeting of the Automotive Wheel Manufacturers' Association will be held here Oct. 10. At the last meeting of the association the following officers were elected: President, R. H. West, West Steel Casting Co.; vice-president, R. B. Flower, Standard Steel Casting Co.; treasurer, W. E. Burns, Michigan Malleable Iron Co.; secretary, George L. Lavery, West Steel Casting Co. Executive committee—H. A. Coffin, Detroit Pressed Steel Co.; R. D. Webster, Wire Wheel Corp. of America; George Walthers, Dayton Steel Foundry Co.

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C. P. Kimball, president of C. P. Kimball & Co., Chicago, body and coach builders, has become president of the Great Lakes Tire Service, which handles the United States tires and tubes and specializes in tire service.

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Lester E. Willson, formerly vice-president in charge of sales of the Briscoe Motor Corp., Jackson, has been appointed general sales manager of the Dauch Mfg. Co., Sandusky, Ohio. J. W. Wellington, formerly production manager of the New Castle, Ind., plant of the Maxwell Motor Co., has been made general manager of the Dauch company.

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Charles H. Gresslee, formerly sales manager of the Selden Truck Sales Co., Cincinnati, has been appointed district sales manager of the All-American Truck Co., Chicago.

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Workers' Exemption Claims Filed

DETROIT, Sept. 30—Through the filing of industrial exemption claims for its needed skilled men the Continental Motors Corp. has been successful in retaining 200 of its force, having been placed in a deferred class. The company has lost 1200 men, who have gone into military service. More than 6500 men are employed by the company, of whom 3000 are with the Muskegon plant. A careful record of the status of every man is kept by the company, which facilitates the filing of exemption claims when occasion arises.

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Railroads Want Highways Co-operation

WASHINGTON, Sept. 30—The United States Railroad Administration has requested all firms or associations planning activities to assist the railroads to also consult with the regional directors of the Highways Transport Committee in their districts with a view to correlating the transportation work of the highways and railroads as much as possible. The Railroad Administration has directed all of its regional traffic assistants to co-operate as closely as possible in this work with the regional directors of the Highways Transport Committee. The highways regional directors have been instructed by the Highways Transport Committee to submit all plans for future organization or extension of operations to the committee for its examination and approval.

Liberal Pension Plan of a Tool Manufacturing Company

AKRON, OHIO, Sept. 30—The Whitman & Barnes Mfg. Co. announces to its employees the establishment of a pensioning plan, which is most liberal in its provisions.

The plan goes into effect as of Sept. 1, and under it those eligible to apply for pensions are:

All employees who have been in the company's service continuously for 30 years or more; male employees who have reached the age of 60 years and female employees who have reached the age of 55 years, and who have been in the company's service continuously for 25 years; male employees 65 years of age and female employees 60 years of age who have been in the company's service continuously for 20 years; male employees 70 years of age and female employees 65 years of age who have been continuously in the company's service for 15 years.

The company bears all the expenses in connection with the administration of the pension system; no contributions from employees will be asked, and no assessments will be levied upon them.

Pensions will be paid monthly as follows: For each year of continuous service, 1 per cent of the average regular monthly pay during the 10 years preceding retirement. Bonuses and awards are not to be included in computing the average monthly pay. No pensions will be granted in amount more than $100 per month, nor less than $20 per month.

The company undertakes to continue the payment of the pensions for the life of the employee, and furthermore, should the employee be married and be survived by a widow, or widower as the case may be, the company will continue to pay the pension to the survivor so long as he or she remains unmarried and possesses no other income or means of support.

In case the employee receives compensation from the company or from any state, national or public fund, for disability incurred in the company's service, the pension granted will not be for a larger amount than will, when added to such other income, be equal to the amount of the pension computed upon the regular basis that such an employee would receive who did not receive other compensation.

Pensions may be refused or canceled in cases of criminal or gross misconduct, or assignment of pension, or in cases which the management deems advisable for cause.

The pensioner is given the privilege of engaging in any other line of work not prejudicial to the interest of the company.

In the cases of those who re-enter the service of the company after having been out of it for a while, the length of service considered in the matter of pension awards is figured from the time at which re-employment began. This provision of course does not hold in the case of such temporary absences as are incurred through illness or accident or temporary lay-off, because of a reduction in the working force.

Where the period during which an employee is out of the service of the company is less than one year, the employee is not considered as having been re-employed, but the time during which he was away from the company is deducted from his "length of service" record in making pension calculations.

The entrance of employees into the Government service is covered by special provisions.

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Jurisdiction Over Flying Fields Altered

WASHINGTON, Sept. 28—The Air Service testing fields located at Dayton, Detroit, Buffalo and Elizabeth, N. J., have been transferred from the jurisdiction of the Bureau of Aircraft Production to the Division of Military Aeronautics.

The method of testing finished airplanes will undergo a complete change. Instead of flying each machine produced at least 1 hour before crating, as has been the practice, the fifteenth, twentieth or thirtieth plane, as may be decided, will be selected from the shop run, shipped directly to a testing squadron and given a trial, "flown to destruction." The other planes will be immediately crated and sent on the way.

As quickly as weaknesses develop in any of the machines tested, the fault found will be communicated both to the factory and overseas, and remedied befor the planes take the air. It is expected that this plan combined with the present high efficiency of factory inspection of parts and assembly, will increase the speed with which airplanes reach the American Expeditionary Forces and at the same time insure the highest quality of service.

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Expansion of Royal Air Force

WASHINGTON, Oct. 1—The Royal Air Force of Great Britain, which numbered a total of 350 officers in June, 1915, contained 18,000 early this year. These figures have been announced by the British Aviation Mission in this country to emphasize the expansion of the air service since 1914.

In July, 1917, British pilots dropped 65 tons of bombs on German towns while in May, 1918, this increased to 686 tons and at the present time as much as 600 tons are dropped in a week. In July, 1916, 62 Hun planes were brought down and 36 British planes were missing, while in March, 1918, 574 German planes were brought down against 162 British planes missing. In July, 1916, 5000 aerial photographs were taken, while in March, 1918, 69,000 aerial photographs were brought in by the air service.

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Will Discuss Waterway Transportation

WASHINGTON, Oct. 1—New fields for important motor truck uses will be developed if the present plans for extending inland waterway transportation are developed. An improtant conference will be held here on Oct. 11 when delegates representing owners of boats on inland canals, members of chambers of commerce in cities located on or near the canals and others interested in waterway transportation will meet with the United States Railroad Administration and discuss the better distribution and more economic use of tonnage. Director-General McAdoo has been endeavoring for sometime to increase the usage of waterways and to bring about closer co-operation between them and the railroads.

Women Workers Must Be Taught to Eat Properly

ST. LOUIS, Sept. 28—Perhaps the most interesting topics developed at the seventh annual convention of the National Safety Congress in session here last week were those in reference to the employment of women in new industries.

The matter of making women satisfied in their new fields came up in the woodworking section, and was echoed throughout the entire meeting.

F. D. Campau, secretary of the Furniture Manufacturers' Association of Grand Rapids, told of the means used there to interest women and keep them on the job. He said in explaining new conditions: "The greatest single stumbling block we found was that the women workers did not eat enough. Most of them were unused to work and came from homes where they could 'get a bite' at any time of the day. They came without sufficient breakfast and they refused to carry a large package of lunch and a lunch bucket was regarded as out of the question. The result was a headache in mid-afternoon.

"In overcoming this our factories tried serving milk and sandwiches for between-meals lunch. The sandwich caused trouble. The Jewish women refused the ham and were inclined to think we had offered them an insult. We changed to chicken and on Friday the Catholic women would not touch our offering. We compromised on a specially made, large, thick ginger cookie which is served with the milk. The headaches have disappeared and so has most of the discontent with factory work.

Complete Dressing Rooms Needed

"Next came the problem of preparing suitable dressing rooms where even the most intimate garments could be exchanged. We have not found any women who are willing to go to and from home in working clothes. The lockers must have rooms for the skirts to hang full length, a place must be provided for large hats and there must be sufficient full length mirrors. Small mirrors are required in abundance.

"We have found that women can be interested in safety work more easily than men and more effectively. If a good social worker is not available, pick out some woman from the workers and instruct her in all of these things so that she may be a leader.

"We have found that care of injured or ill working women in a good hospital is a good investment. Often the women, as well as men, sent to a hospital get their first lesson in cleanliness, of living where there are sheets, proper night clothing, balanced diet and the lessons they learn there make them better employees. Especially is the effort to have the very best surgical treatment a lesson, for they quickly demand better from the family doctor for their family in case of need, and this better treatment which follows goes far to relieve their worries at home."

AUTOMOTIVE MATERIALS MARKETS

Materials Market Prices

Acids:
Muriatic, lb. ..... .02-.03
Phosphoric (85%).. .35-.39
Sulphuric (60), lb.. .008

Aluminum:
Ingot, lb. ..... .33
Sheets (18 gage or more), lb. ..... .40

Antimony, lb. ..... .13¾-.13⅞

Burlap:
8 oz., yd..... .17¼-.17½
10½ oz., yd..... .21½-.22

Copper:
Elec., lb. ..... .26
Lake, lb. ..... .26

Fabric, Tire (17¼ oz.):
Sea Is., combed, lb.1.65-1.70
Egypt, combed, lb.1.25-1.35
Egypt, carded, lb.1.20-1.30
Peelers, combed, lb.1.05-1.20
Peelers, carded, lb. .95-1.05

Fibre (⅛ in. sheet base), lb. ..... .50

Graphite:
Ceylon, lb. ..... .07½-.25
Madagascar, lb. .... .10 -.15
Mexican, lb. ..... .03¾

Lead, lb. ..... .08 -.09

Leather:
Hides, lb. ..... .18 -.35¼

Nickel, lb. ..... .40

Oil:
Gasoline:
Auto., gal. ..... .24½
68 to 70 gal. ..... .30½
Lard:
Prime City, gal..2.50
Ex. No. 1 gal....1.70
Linseed, gal. 1.88-1.90
Menhaden (Brown) gal. 1.30-1.31
Petroleum (crude),
Kansas, bbl. 2.25
Pennsylvania, bbl.4.00

Rubber:
Ceylon:
First latex pale crepe, lb. ..... .61 -.63
Brown, crepe, thin, clear, lb. ..... .60
Smoked, ribbed sheets, lb. .... .59 -.61½
Para:
Up River, fine, lb. .68
Up River, coarse, lb. ..... .40
Island, fine, lb... .59

Shellac (orange), lb. .74 -.76

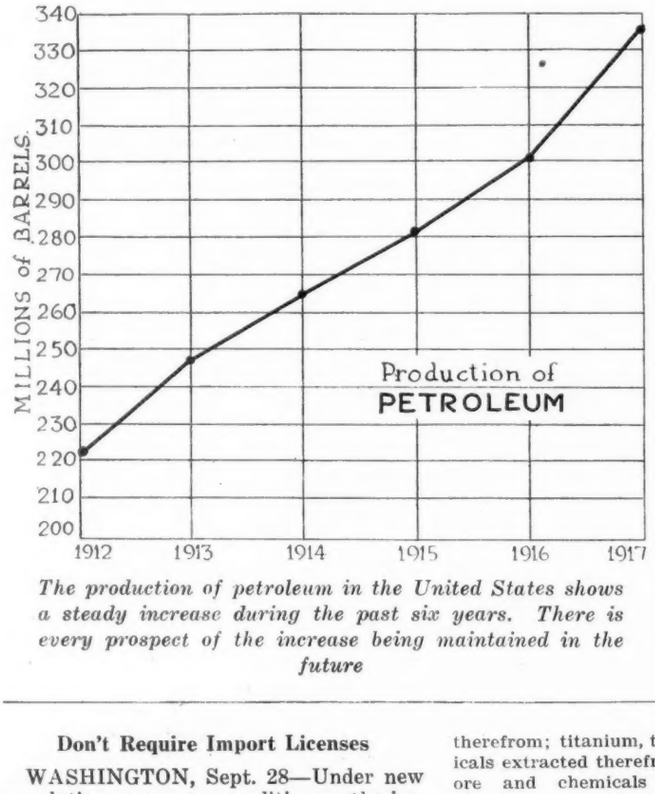
Spelter ..... .09½-.09¾

Steel:
Angle beams and channels, lb. ... .03
Automobile sheet (see sp. table).
Cold rolled, lb..... .06½
Hot rolled, lb..... .03½

Tin ..... .80

Tungsten, lb. 2.45-2.50

Waste (cotton), lb... .12¾-.17



The production of petroleum in the United States shows a steady increase during the past six years. There is every prospect of the increase being maintained in the future

AUTOMOBILE SHEET PRICES

(Based on No. 22 Gage. Other gages at usual differentials)

	Primes only Per 100 lbs.	Primes when seconds up to 15 per cent are taken Per 100 lbs.
Automobile body stock.....	$5.95	$5.85
Automobile body stock, deep stamping	6.20	6.10
Automobile body stock, extra deep stamping	6.45	6.35
Hood, flat fender, door and apron, or splash guard stock.....	6.05	5.95
Crown fender, cowl and radiator casing, deep stamping	6.30	6.20
Crown fender, cowl and radiator casing, extra deep stamping.....	6.55	6.45

Automobile Sheet Extras for Extreme Widths:
Nos. 17 and 18 over 36 in. to 44 in., 10c. per 100 lb.
Nos. 19 and 21 over 36 in. to 44 in., 30c. per 100 lb.
Nos. 22 to 24 over 26 in. to 40 in., 40c. per 100 lb.
Nos. 22 to 24 over 40 in. to 44 in., 80c. per 100 lb.

Black Sheet Extras to Apply to Narrow Widths:
Oiling, 10c. per 100 lb.
Patent leveling, 25c. per 100 lb.
Resquaring, 5 per cent of gage price after quality, finish and size extras have been added.

Seconds 10 per cent less than the invoice Pittsburgh price for corresponding primes.

Don't Require Import Licenses

WASHINGTON, Sept. 28—Under new regulations many commodities can be imported into the United States from the United Kingdom, France or Italy or their European or Mediterranean African possessions without first securing an individual import license. The following commodities are those connected with the automotive industries specifically excluded from the terms of the new general license and will require the individual license:

Asbestos; castor oil, castor beans; crome, crome ore and chemicals extracted therefrom; cobalt, cobalt ore, and chemicals extracted therefrom; copper ore and copper concentrates; corundum; emery and emery ore; ferro-alloys; ferro-manganese; graphite or plumbago, and graphite crucibles; iridium; iron ore, lead, leather; all finished and all leather row stock; manganese, manganese ore; mica; molybdenum, molybdenum ore and chemicals extracted therefrom; palladium; platinum and manufactures of, pyrites; rubber, crude, scrap and reclaimed; balata, gutta joolatong, gutta percha, gutta siak; manufactures of rubber; tin in bars, blocks, pigs or grain or granulated, tin ore and tin concentrates or any chemical extracted therefrom; titanium, titanium ore and chemicals extracted therefrom; tungsten, tungsten ore and chemicals extracted therefrom; vanadium, vanadium ore, and chemicals extracted therefrom.

Requests Suspension of Racing

WASHINGTON, Sept. 30—Voluntary suspension, for the period of the war, of automobile, motorcycle and motor boat racing and speed contests has been asked by the United States Fuel Administration. The American Automobile Association, co-operating with the request, has assured the Fuel Administration that it will strictly observe it. Chairman Richard Kennerdell, of the Association Contest Board, stated that he has suspended operations and will issue no more sanctions for race meets or speed contests. Sanctions have been previously given for races to be held at Trenton, N. J.; Danbury, Conn.; Tucson and Phoenix, Ariz., and in Los Angeles, Cal., within the next 2 months, but it is expected by the Fuel Administration that the promoters of these contests will call off the events in order to meet the Administration's request.

Sulphuric and Nitric Acid Prices Fixed

WASHINGTON, Sept. 27—The following maximum prices have been agreed upon for sulphuric and nitric acid as a result of conferences between the manufacturers of these and the Price Fixing Committee of the War Industries Board. The prices take effect Sept. 30, 1918, and expire Dec. 30, 1918:

Sulphuric Acid 60° Baumé, $16 per ton of 2000 lbs.

Sulphuric Acid 66° Baumé, $25 per ton of 2000 lbs.

Sulphuric Acid 20 per cent Oleum, $28 per ton of 200 lbs. f.o.b. at manufacturers' works in sellers' tank cars.

All strengths less than 66° Baumé shall be calculated from the price of 60° Baumé.

All strengths above 66° Baumé (93.2 per cent H_2SO_4) shall be calculated from the price for 66° Baumé.

In carboys, in carload lots, one-half cent per pound extra.

In carboys, in less than carload lots, three-fourths cent per pound extra.

In drums, any quantity, one-fourth cent per pound extra.

Nitric Acid 42° Baumé 8½ cents per pound, f.o.b. manufacturers' works in carboys.

In carboys in less than carload lots one-fourth cent per pound extra.

There shall be no additional mixing charge for mixed acids, same being figured on the acidity content.

Lansing Co. Receives Trailer Order

LANSING, Sept. 30—The Lansing Co. has secured an additional Government contract for electric industrial truck trailers of the Reynolds type, thereby putting the company on a 90 per cent war basis. Seventy per cent is sent directly to the United States Government and 15 per cent is indirect. The remaining 10 per cent of the company's production will be devoted to equipment for industrial and commercial institutions. Under the new contract the company is to supply 400 trailers a week to the Government until the demands are supplied. The company now maintains three portable mills to supply lumber and timber for government use. One is located in a camp 15 miles west of Lansing, another near Holland, and the third near Ann Arbor. The company is now compelled to work over-time and has been devoting four nights a week to war work.

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Schacht Doubles Floorspace

CINCINNATI, Sept. 28—The Schacht Motor Car Co. will occupy the large new extension to its plant in this city, by which it doubles its factory floorspace and considerably more than doubles its output by Nov. 1, after which 80 per cent of its production will be under contracts it now has with the Government.

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Liberty Carburetor Organizes

The Liberty Carburetor Co., Detroit, has been organized by Jere McCarthy, president of the McCarthy Motor Sales Co., Ford distributer. The company will manufacture a special carburetor for Ford cars known as the Liberty.

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Airplane Plant for Chicago

CHICAGO, Sept. 28—The Illinois Mfg. Association is negotiating for the erection of an airplane plant here. The estimated cost is $50,000,000.

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More Room for France

CLEVELAND, Sept. 28—The France Mfg. Co. has just moved into a new factory building on Berea Road.

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Naval Architects to Meet Nov. 14

PHILADELPHIA, Sept. 28—The twenty-sixth general meeting of the Society of Naval Architects and Marine Engineers is to be held in Witherspoon Hall, Philadelphia, Thursday and Friday, Nov. 14 and 15. There will be a banquet at 7 p. m. Friday.

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Wisconsin Plates to Cost $0.15½ a Pair

MILWAUKEE, Sept. 30—The State of Wisconsin has contracted with the Schwab Stamp & Seal Co., Milwaukee, for 200,000 pairs of motor license plates for 1919 at 15½ cents per pair, the same price charged by this concern for the 1918 supply. Last year the requirement was 180,000.

Current News of Factories

Notes of New Plants—Old Ones Enlarged

Western to Make Own Trailers

KANSAS CITY, Sept. 28—The Western Trailer Co., of which C. J. Welch is president, will take up the manufacture of a line of trailers. The company heretofore has been Western distributer of Fruehauf trailers, but hereafter will make its own. It is planned to produce a body for every line, including flareboard, stake and enclosed, canopy top, etc. The company is erecting a four-story building 60 x 150 ft., and will be in production within 90 days.

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Ford Considering Mexican Market

DEARBORN, MICH., Sept. 30—Henry Ford & Son have closed arrangements with J. L. Mayfield, of Mexico City, Mexico, to supply him with 1000 Fordson tractors during the ensuing year for distribution throughout Mexico. He has been appointed Mexican representative, but will be privileged to send tractors to states bordering Mexico if the opportunity presents itself. This means that all the machines sent to him will not be distributed entirely within Mexico.

The current rumors that the tractor company has completed plans for the erection of a plant in Mexico are unfounded. The proposition is being looked into, however, and it is Ford's intention eventually to have a factory in that country.

The tractor plant is running at high speed, and is striving hard to attain a production of 200 tractors daily. The highest daily output was reached Sept. 27, when 191 machines were produced.

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Detroit Weatherproof Advances Price

PONTIAC, MICH., Sept. 30—The Detroit Weatherproof Body Co. will advance its prices from $97.50 to $110 on Oct. 1.

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Dividends Declared

The Hendee Mfg. Co., Springfield, Mass., has declared a quarterly dividend of 1¾ per cent on its preferred stock, payable Oct. 1. Books close Sept. 20.

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The Standard Woven Fabric Co., Framingham, Mass., has declared a quarterly dividend of 1¾ per cent on its first preferred stock, payable Oct. 1. Books close Sept. 20.

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The Hupp Motor Car Corp., Detroit, has declared the regular quarterly dividend of 1¾ per cent on the 7 per cent cumulative preferred stock, payable Oct. 1 to stockholders of record Sept. 20.

Oakland Starts on First Government Order

PONTIAC, MICH., Sept. 30—Work has started this week at the Oakland Motor Car Co. on the company's first Government order. A large contract for two-wheeled kitchen trailers for the Aviation Section had been received several weeks ago. The capacity of the trailer is 1 ton, and when fully equipped is a complete field kitchen for 310 men. Stoves and ovens are mounted directly on the trailer, which is equipped with adjustable legs to balance it in horizontal position. None of the equipment is removed from the trailer when in use.

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Trailers from Grand Rapids

GRAND RAPIDS, Sept. 30—The J. M. Case Trailer Co. is a new company in the motor truck industry which manufactures a complete line of all-steel semi and four-wheeled trailers of 3, 4, 6 and 10-ton capacity. The company also builds three sizes of pole trailers, 3½, 4 and 6-ton, and trailer chassis equipped with gravity steel dump bodies. The president of the new company is J. M. Case.

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Auto Body Gets War Order

LANSING, Sept. 28—The Auto Body Co. has received a war order for truck bodies, the value of which is said to be approximately $500,000. This is understood to be one of a number of body orders given or to be given by the Government to some of the body manufacturers who heretofore have done little or no war work.

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Chicago Dealer Develops Farm Light

CHICAGO, Sept. 28—To supply complete automotive equipment to dealers for farm power, the Marmon-Chicago Co., Marmon and Hupmobille distributer, will market on a national scale a new product of its own, the Universal farm light and power plant, designed to supply complete electric light and power for the modern farm. Charles E. Gambill, for 17 years with the Marmon company, and president of the Marmon-Chicago Co., states that the Universal plants will be distributed entirely through motor car trade channels. The system is one which can be utilized not only for electric lighting but also is designed for use with other small power farm machinery, such as cream separators, milking machines, feed grinders, etc., and, in addition to the gasoline-electric outfit, the company will distribute nationally equipment of this sort, designed for the Universal plants. In addition the Marmon-Chicago Co. has taken on the distribution over limited territory of the Parrett tractor.

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Motor Truck Club Changes Name

NEW YORK, Sept. 28—By way of eliminating misunderstanding regarding its aims and objects, the Motor Truck Club of America has changed its name to Motor Truck Association of America.

Contracts

Quartermaster Corps Contracts

WASHINGTON, Sept. 30—The following list of contracts have been placed by the Quartermaster Department of the Army:

George W. Diener Mfg. Co., Chicago, gasoline cans, $1000.
Vacuum Oil Co., New York, Gargoyle cylinder oil, $33,160.
Standard Oil Co. of Indiana, Chicago, fuel oil, $42,880.
Prudential Oil Corp., New York, motor gasoline, $54 000.

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Aircraft Bureau Contracts

WASHINGTON, Sept. 30—The following list of contracts have been placed by the Bureau of Aircraft Production:

Hayes Mfg. Co., Detroit, cylinder jackets.
Liberty Iron Works, Sacramento, spares for planes.
Fisher Body Corp., Detroit, spares for planes.
Iron City Products Co., Pittsburgh, engine spares.
Chicago Metal Products Co., Chicago, piston pins.
Splitdorf Electrical Co., Newark, spark plugs.
Zenith Carburetor Co., Detroit, spares for carburetor.
Wright-Martin Aircraft Corp., New Brunswick, engine spares.
Bristol Co., Waterbury, Conn., venturi tubes.
W. H. Mullins Mfg. Co., Salem, Ohio, cylinder water jackets.
Watts, Stebbins & Co., New York, balloon cloth.
Stewart Hartshorn Co., New York, tie rods.
Wright-Martin Aircraft Corp., New Brunswick, engine spares.
Willys-Overland Co., Toledo, engines.
Western Electric Co., New York, fittings for antenna systems.
A. Fisher Body Corp., Detroit, propellers.
Wright-Martin Aircraft Corp., New Brunswick, engine spares.
Duplicator Mfg. Co., Washington, commercial duplicators with supplies.
Pittsburgh Steel Products Co., Pittsburgh, steel tubing.
Bordentown Steel & Tube Co., Bordentown, N. J., steel tubing.
Batesville Lumber & Veneer Co., Lawrenceburg, Ind., lumber.
Louisville Point Lumber Co., Louisville, lumber.
Kosse, Shoe & Schleyer Co., Cincinnati, lumber.
James Cunningham & Sons Co., Rochester, balloon windlasses.
Foxboro Co. (Inc.), Foxboro, Mass., air speed indicators.
Splitdorf Electrical Co., Newark, engine spares.
Kuena Radiator Co., Toledo, radiator spares.
Candler Radiator Co., Detroit, radiator spares.
Splitdorf Electrical Co., Newark, spark plugs.
Curtiss Aeroplane & Motor Corp., Buffalo, spares for planes.
Marlin-Rockwell Corp., New York, N. Y., boxing radiators.
Pyrene Mfg. Co., Washington, fire extinguishers.
Tennessee Valley Iron & Railroad Co., Collinwood, Tenn., locomotive and crane.

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Engineer Depot Contracts

WASHINGTON, Sept. 30—The following list of contracts have been awarded by the General Engineer Depot, War Department:

Hercules Gas Engine Co., Evansville, gasoline and kerosene engines.
Goodyear Tire & Rubber Co., Washington, rubber hose.
Texas Co., South Washington, Vt., Texaco motor oil.
Link-Belt Co., Chicago, locomotive cranes.

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Ordnance Department Contracts

WASHINGTON, Sept. 30—The following list of contracts have been placed by the Ordnance Department of the United States Army:

Holt Mfg. Co., Peoria, Ill., tractor equipment.
Nash Motors Co., Kenosha, truck equipment and truck chassis.
R. M. Newbold, Washington, test and development of truck lighting, maintenance, and repairs on motor vehicles.
Detroit Copper & Brass Rolling Mills Co., Detroit, brass rod.
Warren Tool & Forge Co., Warren, Ohio, crowbars.
Grant Motor Car Co., Cleveland, gun drawings.
Fox Motor Co., Philadelphia, and Presto Machine Works (Inc.), Brooklyn, inspection gauges.
Eiseman Magneto Co., Brooklyn, magneto breaker.
Nash Motors Co., Kenosha, truck repair parts.
Johns-Manville Co., H. W., New York, speedometers.
American Brass Co., Waterbury, Conn., hinge pins.

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Ordnance Department Contracts

WASHINGTON, Sept. 27—The Army Ordnance Department has placed the following purchase orders:

Four-Wheel Drive Auto Co., Clintonville, truck repair parts.
Studebaker Corp., South Bend, forging and machining shells.
Quartermaster Corps, New York, cup grease and gasoline.
A. O. Smith Corp., Milwaukee, smoke and drop bombs.
Ohio Trailer Co., Cleveland, trailers and equipment.
Nash Motors Co., Kenosha, various truck equipment.
Highland Body Mfg. Co., Cincinnati, truck bodies.
American Axe & Tool Co., Glassport, Pa., bench axes.
North & Judd Mfg. Co., New Britain, Conn., snap hooks and rings.
Berg Auto-Trunk & Specialty Co., New York, fuse setter cases.
Hindley Gear Co., Philadelphia, trench motor assembly.
Detroit Copper & Brass Rolling Mills, Detroit, cartridge-case disks.
White Motor Co., Cleveland, truck spare parts.
Holt Mfg. Co., Peoria, tractor hand books.
Ford Motor Co., Detroit, helmets.
Motor Car Equipment Co., New York, portable electric motor.
Hale & Kilburn Corp., Philadelphia, miscellaneous equipment for repair trucks.
C. M. Hall Lamp Co., Kenosha, rubber and brass tubing.
Plant Bros. & Co., Manchester, N. H., repair truck covers.
Bijur Motor Lighting Co., Hoboken, adapters.
Fisher Auto Top Co., Norwalk, Ohio, powder bags.
Inter-State Motor Co., Muncie, tractors.
Four-Wheel Drive Auto Co., Clintonville, towing hooks, water manifolds.
Champion Ignition Co., Flint, spark plugs.
The Lang Body Co., Cleveland, crating cars.
Commerce Motor Car Co., Detroit, brown prints.
Dodge Bros., Detroit, spare parts for truck chassis.
Bastian-Blessing Co., Chicago, miscellaneous chests for supply trucks.
Dunlap & Co., Edinburg, Ind.; Chas. T. Wilt Co., Chicago, truck chests.
American Car & Foundry Co., Berwick, trailer bodies and spare parts.

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Planes Coming From Cincinnati

CINCINNATI, Sept. 28—The Overmeyer Airplane Mfg. Co. has bought three acres of land at the West End and will at once begin the construction of a plant for the manufacture of airplanes. It will begin with three large contracts from the Government for war service and will be kept busy on Government and war work during the period of the war, but the plans of the projectors are to manufacture airplanes for commercial and private use following the close of the war. E. C. Drury, of Philadelphia, is interested in the company.

Ordnance Purchase Order

WASHINGTON, Sept. 18—Following is a list of contracts and purchase orders placed by the Ordnance Department of the United States Army:

Four Wheel Drive Auto Co., Clintonville, Wis., truck chassis spare parts.
General Electric Co., Schenectady, N. Y., mobile repair shop equipment.
Quartermaster Corps, Washington, D. C., automobile and motorcycles.
White Co., Cleveland, Ohio, tarpaulins.
Ward & Co., Washington, D. C., repair track tools and equipment.
Goodyear Tire & Rubber Co., Akron, Ohio, tire repair material.
Berg Auto Truck & Specialty Co., New York City, carrying cases.
Quartermaster Corps, New York, N. Y., axle grease.
The Four Wheel Drive Auto Co., Clintonville, Wis., truck repair parts.
Quartermaster Corps, New York, N. Y., engine oil.
Dodge Bros., Detroit, Mich., instruction books.
Swineheart Tire & Rubber Co., Akron, Ohio.
Berg Auto Truck & Specialty Co., New York, N. Y., dispatch cases.
Federal Rubber Co., Cudahy, Wis., rubber cups.
Cadillac Motor Car Co., Detroit, Mich., unit tractor power plant.
The Williams Foundry & Machine Co., Akron, Ohio, clamps.
Firestone Tire & Rubber Co., Washington, D. C., Indian Tire & Rubber Co., New Brunswick, N. J., solid tires.
Federal Rubber Co., Cudahy, Wis., hand grenade plugs.
Norman W. Henley Publishing Co., New York, N. Y., automobile repair books.
Allen Motor Co., Fostoria, Ohio, recoil groups.
Commerce Motor Car Corp., Detroit, Mich., alterations on trucks.
Lansing Co., Lansing, Mich., trailer trucks.
The Wheeler-Schebler Carburetor Co., Indianapolis, Ind., carbureters.
The Baker R. & L. Co., Cleveland, Ohio, standard tractors and trucks.
The Eiseman Magneto Co., Brooklyn, N. Y., magneto repair parts.
Commerce Motor Car Co., Detroit, Mich., tire pumps.
Empire Rubber & Tire Co., Trenton, N. J.
Columbus McKinnon Chain Co., Columbus, Ohio, American Chain Co., Bridgeport, Conn., truck chains.
Firestone Tire & Rubber Co., Akron, Ohio, cord tires and inner tubes.
Goodyear Tire & Rubber Co., Akron, Ohio, United States Tire Co., New York City, tires and inner tubes.
Locomobile Co. of America, Bridgeport, Conn., motor testing apparatus.
Maxwell Motor Co., Dayton, Ohio, test of ordnance vehicles at S. A. E. convention, Dayton, Ohio.
The Eiseman Magneto Co., Brooklyn, N. Y., magnetos.
The Nash Motors Co., Kenosha, Wis., metal tool boxes.
Fisk Rubber Co., Chicopee Falls, Mass.; Braender Rubber & Tire Co., Rutherford, N. J., tires.
United States Tire Co., New York City; Hood Rubber Co., Watertown, Mass.; Goodyear Tire & Rubber Co., Akron, Ohio; The B. F. Goodrich Rubber Co., Akron, Ohio, solid tires.
The Nash Motors Co., Kenosha, Wis., miscellaneous truck equipment.

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Navy Supplies Contracts

WASHINGTON, Sept. 28—The Bureau of Supplies and Accounts of the Navy Department has placed these contracts:

Randolph & Baker, Sussex, New Brunswick, airplane spruce.
S. H. White, Ottawa, Ontario, airplane spruce.
Watson & Todd, Ottawa, Ontario, airplane spruce.
A. C. Dutton Lumber Co., Springfield, airplane spruce.

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Marine Corps Contracts

WASHINGTON, Sept. 28—The Marine Corps has placed contracts as follows:

Marathon Tire & Rubber Co., Cuyahoga Falls, tire casings and inner tubes.
Standard Oil Co., of New Jersey, Baltimore, oil and gasoline.
Nash Motors Co., Kenosha, spare parts for trucks.

Cleveland Busy on War Work

CLEVELAND, Sept. 28—Nearly all the industrial activity in Cleveland is war work. Practically every kind of war necessity is made in this city. The production of passenger cars is at low ebb and all the companies are working up their inventories preparatory to getting on 100 per cent war basis by Jan. 1. Cleveland's production is more diversified than any city of the United States.

The wood-working and castings industries are not very busy, but it is expected that the latter will be filled to capacity within a short time. The Government demands for wood-working lines being only a small percentage of the capacity of the industry, many of the plants will be obliged to convert their facilities to other activities or suspend operations entirely, as very little commercial demand along this line exists.

The White company is speeding up its production of the large Government order for Class A trucks, part of which was parceled out to the Pierce-Arrow, Peerless and Packard companies, each receiving an order for 3000. The Peerless company is tooling up to get into production.

The Grant Motor Car Corp. is experiencing some difficulty in obtaining material. The average daily output of passenger cars is fifteen and truck production is 150 a month. The company is cleaning up its inventory with the expectation of being on 100 per cent war basis by the first of the year. The erection of a large building in Findlay, Ohio, is being considered, although nothing definite has been determined.

The Jordon Motor Car Co. is balancing its inventory and expects to be on war work entirely by the end of this year. The F. B. Stearns Co. is busily engaged in turning out Rolls-Royce airplane engines, of which it produces six a day. Only two passenger cars are built daily. Approximately 75 per cent of the production of the Willard Storage Battery Co. is for the Government. The production of passenger cars at the Winton plant is slowly diminishing, the output now being five a day. War work takes the biggest portion of the facilities of the plant. The Chandler Motor Car Co. has been in production on its war tractors for a number of weeks with the resultant reduction of passenger cars.

The tests at Dayton of the new bombing plane made by the Glenn L. Martin Co. are proving that this new type of plane is the best yet produced. The results thus far are very gratifying, but the company is not ready to make any public announcement until the tests have been completed. The 68-acre flying field adjoining the plant is rapidly being put into shape and six large hangars will soon be erected. Each hangar will accommodate two or three machines.

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Disclose Chevrolet-G-M Plan

NEW YORK, Sept. 28—In the official circular being sent to the stockholders of the Chevrolet Motor Co., calling attention to the special meeting to be held in this city on Oct. 11, for the purpose of voting on a plan calling for distribution of its assets to the Chevrolet stockholders, it is pointed out that an arrangement has been made with the General Motors Corp. whereby fractional shares will be purchased by that corporation at the rate of $112 a share for General Motors Corp. common stock. The arrangement calling for the sale of the assets of Chevrolet to General Motors was approved in writing by the holders of 571,437 shares out of a total of 641,098 shares outstanding.

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Call "Non-Essential" Laborers "Slackers"

WASHINGTON, Sept. 28—Transfer of men from employment in "non-essential" industries by characterizing them as "slackers" is planned by the United States Employment Service. Community Labor Boards throughout the country have been notified by N. A. Smythe, Director of the Service, to prepare and have published lists of industries in which women can be substituted for men. It is expected that by this means the men who are working in non-essential industries will be shamed into transferring their activities. It is anticipated that this will result in a transfer of 500,000 men to war work.

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Pay Certain Regal Creditors in Full

DETROIT, Sept. 28—All creditors against the Regal Motor Co., now in receivership, whose claims are secured by first mortgage gold notes of the company, will be paid in full, it is announced by the Securities Trust Co., receiver. It is estimated that unsecured creditors will receive from 20 per cent to 25 per cent of their claims. The public sale, together with the machinery taken over by the Government, amounted to $541,347.25.

Bicycle Makers to Conserve

WASHINGTON, Sept. 28—Bicycle manufacturers will conserve about 2500 tons of steel by observing a conservation program effective Oct. 1, and outlined as a result of conferences between the manufacturers and the War Industries Board. In addition to saving this steel, which is one-third of the quantity consumed by the industry in the last 12 months, there will be additional savings of other materials, production will be simplified and capital tied up in stocks will be released. The results are to be secured through a substantial reduction in the numbers of types and models of bicycles, saddles, handlebars, rims, tires, sprockets, pedals, etc. The manufacturers will discontinue, wherever possible, the use of metal, rubber and leather. Partly fabricated materials can be continued for production provided that no bicycles are made later than Dec. 31, 1918, other than those provided in the new program. Rim manufacture will be confined to one clinch type, 28 x 1 9/16, one single tube type 28 x 1 7/16. Tires will be confined to one clincher type in two sizes, either 28 x 1½ or 28 x 1⅝, one single tube type 28 x 1½ or 28 x 1⅜. Manufacturers may use the different markings, treads, etc., which are provided by the rubber tire manufacturers in accordance with their conservation schedule.

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Ford Tractors Sent in Carloads

DEARBORN, MICH., Sept. 28—Henry Ford & Son are now carrying out a uniform policy with all their distributers of sending them only carload lots of 300 tractors each. This permits a whole train load to go to one destination and eliminates railroad congestion somewhat. The tractors are unloaded at one point and distributed from there throughout the state. Four train loads, each bearing 300 tractors, were dispatched to each of the following states: Iowa, Kentucky, Indiana and New York. Train loads will be sent to other states as fast as production permits. The daily production of the plant averages 155 tractors now.

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Seven Deaths from Flying

WASHINGTON, Sept. 28—Seven deaths resulted at flying fields in this country for the week ending Sept. 21, 1918, representing one fatality for every 2129 hours flown, or 171,320 miles of air travel.

Calendar

ENGINEERING

Nov. 14-15 New York. Society of Naval Architects and Marine Engineers. Twenty-sixth general meeting. Engineering Societies Bldg., 29 West 39th Street.

ASSOCIATIONS

Oct. 7-12—Milwaukee. American Foundrymen's Assn. and 5 allied organizations. Milwaukee Auditorium.

SHOWS

Sept. 30-Oct. 4—Trenton, N. J. Tractor demonstration (Trenton Fair). Harry B. Salter, Supt.

Oct. 1-5 — Washington, Ga. (Wilkes Co.). Tractor demonstrations, State Fair.

Oct. 12-19 — Atlanta. Tractor demonstrations Eastern State Fair and Automotive Exhibition.

Oct. 14-27—Dallas, Tex., Seventh Annual Texas Automobile Show. Texas State Fair.

Oct. 16-18—Ottawa, Ont., International Plowing Match, Tractor and Farm Machinery Demonstration. Experimental Farm.

Oct. 30-Nov. 4—Shreveport, La. Tractor demonstration. State Fair.

Nov. 11-16—Phoenix, Ariz. Tractor demonstration, State Fair.

RACING

Oct. 5 — Cincinnati. Cincinnati Speedway.